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IN THE

Supreme Court of the United States

OCTOBER TERM, 1972

No. 72-1127

THE O. M. SCOTT AND SONS COMPANY, *Petitioner,*

v.

CLYDE M. NOLL and S. JOSEPH FORTUNATO,
as Trustees, *Respondents.*

BRIEF IN OPPOSITION TO THE PETITION

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v.

CLYDE M. NOLL and S. JOSEPH FORTUNATO, as Trustees, *Respondents.*

BRIEF IN OPPOSITION TO THE PETITION

SUMMARY OF ARGUMENT

Questions 1 and 2.

When properly delimited by Petitioner's concessions in the Sixth Circuit with respect to the several validity holdings of the District Court that were adverse to Petitioner, questions one and two present no question other than of the correctness of the narrow holding of the Court of Appeals that the enactment of the third paragraph of 35 U.S.C. § 112 had effected a limited modification of the Sixth Circuit's *Kalle* rule. That holding poses no challenge to this Court's repeated pronouncements that patent claims measure the patent grant, and it brings the Sixth Circuit

into conformity with the results reached by other Circuits on comparable facts.

There is no trend in the Circuit Courts of Appeal toward a double-standard of claim construction (limited for validity, broad for infringement) under the third paragraph of § 112. The Courts of Appeal have rejected that approach and are construing patent claims, in accordance with the statute, in an even-handed manner that does not encourage overclaiming.

Question 3.

The third question errs in its supposition that the settlement agreements gave Vineland and Cleary the power to control "all matters affecting exploitation and enforcement" of the patent. Both the District Court and the Court of Appeals found the fact, fully supported by the record, that the settlement agreements contained "affirmative provisions which assure free competition." There was no grant of power to restrain competition. There has not been any erosion of the *Besser* rule.

COUNTERSTATEMENT OF QUESTIONS 1 and 2*

The issues which Petitioner [hereinafter "Scott"] may properly raise here and those which it is precluded from asserting are determined by the several holdings of the District Court** with respect to the validity of the '265 patent in suit from which Scott did *not* cross-appeal to the Sixth Circuit and which were never raised, briefed or

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* The counterstatement of question three, and the related statement of the case, are set forth, *infra*, 22-25.

** The opinion of the District Court is reprinted in full, *infra*, A-1b.

argued in the court below.* This Court has consistently said that it will not grant a writ of *certiorari* to review issues which the petitioner conceded, abandoned or did not raise in the court to which the writ is directed. *California* v. *Taylor*, 353 U.S. 553, 557, n.2 (1957); *Lawn* v. *United States*, 355 U.S. 339, 362, n.16 (1958); *Neely* v. *Eby Construction Co.*, 386 U.S. 317, 330 (1967).

The issue of unpatentability over the prior art was abandoned by Scott.

In its post-trial briefs in the District Court, Scott abandoned the defense of lack of novelty, 35 U.S.C. §§ 102(a) and (b), and concentrated its attack on the invention's purported obviousness in view of the prior art, 35 U.S.C. § 103. On that issue, the District Court held that "the subject matter of the '265 invention was not obvious in the light of the prior art" and that "the discovery of DSMA as a selective crabgrass herbicide was a substantial advance in the art which was not predicated upon the prior art."** In the Sixth Circuit, Scott conceded the correctness of that holding. A-82b.

The significance of that validity holding is that claim 2 of the '265 patient was upheld "as is" over the prior art,

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* Scott's cross-appeal and its arguments in the Sixth Circuit were limited to the issues of infringement and misuse. A-78b, 80b, 82b. Scott specifically *conceded* that all of the holdings of the District Court adverse to Scott with respect to the validity of the '265 patent did not involve clear error. A-82b.

Scott said in its Main Brief on Cross Appeal:

> "In its eighty page opinion, the Court below dealt with a series of complex and difficult issues in addition to the issues of infringement and misuse. The Court decided many of these issues adversely to Scott.
>
> Despite our dissatisfaction with these other rulings, we have not asked this Court to review them. We concede that they are based on interpretations of the law and facts which, though different from ours, cannot be said to involve clear error."

** A-58b.

i.e. in the claim's broadest, literal scope. There was no over-claiming of the prior art and therefore no need or occasion to give the claim a narrow construction to save it from a prior art invalidation. *A fortiori*, there was no question of the propriety of construing the claim narrowly to save it from the prior art and then broadly to cover the infringer, Scott.

Therefore, the statements of questions one and two in Scott's petition* are improperly broad. Claim 2 did *not* embrace "unpatentable" subject matter and there was no "judicial restatement" to save the claim from invalidity over the prior art. [Question 1] Claim 2 was *not* given a "limited scope" to avoid prior art and then a broad scope "when asserted against the public." [Question 2]

Questions one and two of the petition herein, when properly delimited by Scott's concessions below, are thus of no broader reach than the first of the two questions posed by the Sixth Circuit.**

For the same reasons, the question presented by the petition in *General Motors Corp.* v. *Devex Corp.*, No. 72-1161, is inapposite to the present petition. The question in *GM* pertains to a claim which, as written, was purportedly "invalid in view of the prior art", was (according to the petition) saved by being given a narrow construction to avoid the prior art, and then was asserted in

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* Pet. 2-3.

** A-81b. Subsequent to the oral argument, the Sixth Circuit asked counsel simultaneously to file supplemental briefs, and supplemental reply briefs, directed to those questions. In response Scott and Respondents (hereinafter "Trustees") filed briefs totaling 137 pages which exhaustively explored the legislative history, purpose and intended effect of the third paragraph of 35 U.S.C. § 112. Scott requested, and was granted, permission to file yet a third supplemental brief. It did not request supplemental oral argument. The Sixth Circuit answered both questions in the affirmative.

a broader scope to cover the infringer.* That issue is not present in the case at bar.

The issue of definiteness of claiming was abandoned by Scott.

In the District Court, Scott asserted that the claim in suit was vague and ambiguous, and therefore was invalid because it had run afoul of both the requirements of the second paragraph of 35 U.S.C. § 112 and of the rule of *General Electric Co.* v. *Wabash Appliance Corp.*, 304 U.S. 364 (1938). These issues were fully considered by the District Court which found that "the limits of the monoply, with respect to this objection, were clearly defined by the expertise of the art."** Claim 2 was therefore held valid on factual grounds without any resort to the third paragraph of § 112. Scott acquiesced and conceded the issue in the Sixth Circuit. *Supra*, 3.

The first question presented by Scott does not, and can not, raise the same question as that in the petition in *Salem Equipment, Inc.* v. *Kockum Industries, Inc.*, No. 72-951 (filed Jan. 2, 1973).*** In *Salem*, the Ninth Circuit sustained a claim, otherwise invalid under the rule of *General Electric Co.* v. *Wabash Appliance Corp., supra*, by construing the claim in accordance with the third paragraph of § 112.**** In contrast, in the case at bar, the District Court sustained claim 2 over both *Wabash* and the second paragraph of § 112 on the factual ground that the limits of the

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* General Motors Corp. v. Devex Corp., No. 72-1161, Petition 2-3, 14-15 (filed Feb. 22, 1973).

** A-62b-64b.

*** The question in *Salem* is: "Whether a combination-type patent claim may be held valid where it uses functional language at the exact point of alleged novelty."

**** Kockum Industries, Inc. v. Salem Equipment, Inc., 467 F.2d 61, 64 (9 Cir. 1972).

claim were clearly understood by persons having expertise in the art; there was no resort to the third paragraph of § 112 on that issue.

In short, Scott has overstated the narrow question actually decided by the Sixth Circuit in order to confect a philosophical conflict among the Courts of Appeal.

THE CASES ARE IN ACCORD WITH THE SIXTH CIRCUIT

There is no conflict. Rather, the decision below was a step toward bringing the Sixth Circuit into conformity with the results reached in other circuits that have considered the question of whether a claim to the use of a class of compounds is *per se* invalid if a few members of the class are inoperative. The courts which have considered this qustion have consistently sustained the claim. *Ansul Co.* v. *Uniroyal, Inc.*, 301 F.Supp. 273, 285, 288-289 (S.D.N.Y. 1969), aff'd, 448 F.2d 872, 879 (2d Cir. 1971); *Smith, Kline & French Laboratories* v. *Clark & Clark*, 157 F.2d 725, 727-28 (3d Cir. 1946); *Binks Mfg. Co.* v. *Ransburg Electro-Coating Corp.*, 281 F.2d 252 (7th Cir. 1960); *Union Oil Co. of Calif.* v. *American Bitumuls Co.*, 109 F.2d 140 (9th Cir. 1940); *Yosemite Chem. Co.* v. *United States*, 360 F.2d 948 (Ct.Cl. 1966); *Fuetterer, Application of*, 319 F.2d 259, 262-265 (C.C.P.A. 1963).

Graver Tank & Mfg. Co. v. *Linde Air Prod. Co.*, 336 U.S. 271 (1949) (*Graver I*), did not establish a *per se* rule of invalidity. The district court had found that "*many* silicates, even many metallic silicates are inoperative . . . ", 86 F.Supp. 191, 198 (N.D. Ind. 1947), and when this Court affirmed the invalidation of claims 24 and 26, 336 U.S. at 277, it took care to state that the overclaiming had been "*to the point of* invalidity." See, *Cook, Application of*, 439 F.2d 730, at 734 (C.C.P.A. 1971).

Prior to the decision below, the rule in the Sixth Circuit was that the inoperativeness of *any* subject matter literally within the scope of the claim mandated a *per se* holding of invalidity. *Kalle & Co.* v. *Multazo Co.*, 109 F.2d 321, *modified*, 110 F.2d 814 (6th Cir. 1940). The decision below is a narrow one. It holds only that, under the third paragraph of 35 U.S.C. § 112, the *Kalle* rule is inapplicable to combination claims including an element expressed as a means or step for performing a specified function where any inoperative subject matter within the literal non-functional scope of that element is neither described in the specification nor the equivalent thereof.* To that extent, and no further, has the Sixth Circuit's *Kalle* rule been modified; to that extent, and no more broadly, may Scott properly frame the question presented for review by this Court.

None of the decisions upon which Scott predicates its view that the Courts of Appeal are in conflict was concerned with inoperability.** Each dealt with claims that recited an element in functional terms and as such read directly on the prior art, thereby purporting to give the patentee a monopoly over subject matter already in the public domain.

In the case at bar, the conceded holding of the District Court is that claim 2 is valid over the prior art. *Supra*, 3. The only issue that is raised by the presence of two inoperable compounds within the literal terms of the claim is whether the specification of the '265 patent teaches a man skilled in the art how to practice the claimed invention.*** *Infra*, 8-10.

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* Pet., A-7a-8a.

** Pet. 7-9. See, *infra*, 15-16.

*** Fuetterer, Application of, 319 F.2d 259, 265 (C.C.P.A. 1963).

COUNTERSTATEMENT OF THE CASE

Question 1.

The technical subject is a method of selective, post-emergent control of crabgrass in lawns by the application of a novel weed killing composition, more specifically, the application of disodium methyl arsonate ("DSMA"). DSMA kills crabgrass without material damage to the good grasses. It is "post emergent" because the action of the DSMA on the crabgrass seedling or plant is after it has emerged from the seedladen ground. The DSMA, upon being applied in proper concentration and amount to an area containing crabgrass, is capable of destroying the crabgrass while avoiding destruction of material amounts of the useful grasses and plants. It is DSMA, a salt disclosed in the specification of the '265 patent, which Scott used in its accused herbicide, Clout.

Claim 2 (the only claim in suit) is specific to a sub-group of one particular arsonic acid, methyl arsonic acid and salts thereof, which includes the disodium salt DSMA. The other preferred salts of claim 2 are potassium methyl arsonate, calcium methyl arsonate and magnesium methyl arsonate.

The evidence on inoperability is this.* Claim 2 literally reads on thousands of salts of methyl arsonic acid. Scott, with the strongest incentive to turn up salts that are inoperable, tested numerous compounds *ex parte* after litigation had commenced, and found many salts that worked for the selective control of crabgrass. It also found ten that it felt were inoperable and with respect to them it introduced evidence of inoperativeness. The District Court found that *two*** salts were inoperable.

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* A-60b-61b; Tr. 783-87, 832-34; R.I. 237-239, 247-249.

** A-61b. The copper salt and the phenyl mercury salt. Neither one is among the patent's list of useful salts.

Bound by what it comprehended to be the *Kalle* rule of the Sixth Circuit that inoperativeness of *any* subject matter literally within the scope of the claim mandated a *per se* holding of invalidity, the District Court held claim 2 invalid.*

It is important to note that in the District Court, Scott attacked the '265 patent on the ground that its specification did not meet the requirement of the *first* paragraph of 35 U.S.C. § 112, *viz.* that the patent did not teach a man skilled in the art how to practice the invention because he assertedly had to conduct "basic experimentation" before the method of claim 2 could be practiced.**

The District Court held the patent valid against this attack.*** Scott conceded that the holding was not clearly erroneous.****

In short, the '265 patent was held invalid by the District Court because of the Sixth Circuit's *per se* rule of *Kalle* and not because of any failure of the patent to give the

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* Pet., A-5a. The District Court also took the *Kalle* rule as authority to relieve the defendant-infringer of its burden of proving invalidity and to put to burden of proving validity upon the patentee. A-61b. On appeal, Trustees argued that such a shift of the burden of proof was prohibited by 35 U.S.C. § 282. ("A patent shall be presumed valid. . . . The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting it.") The Sixth Circuit did not find it necessary to reach that issue. Trustees reserve their right to argue the matter in this Court if the Petition is granted.

** A-64b-65b.

*** A-66b.

**** A-82b. The Scott employee who had conducted the inoperability tests admitted at trial that an agronomist, having the teachings of the '265 patent before him, could determine, as he had done, the efficacy of any particular compound as a selective crabgrass herbicide by conducting one routine test, following procedures that were utilized by agronomists prior to the issuance of the patent [Tr. 783-87, R.I. 237-39].

public the *quid pro quo* teaching in return for the grant of the patent monopoly.

Question 2.

The Sixth Circuit found that claim 2 was of the form prescribed by the third paragraph of 35 U.S.C. § 112, and construed the claim, in accordance with the statute, to "cover the corresponding structure, material, or acts described in the specification *and equivalents thereof.*"*

As found factually by the District Court and affirmed by the Sixth Circuit, the sole active ingredient in Scott's Clout was DSMA,** a "material . . . described in the specification" of the '265 patent. It was further found as a factual matter that Scott's method of applying DSMA to turf in a dry, granular formulation was the "equivalent" of the method of application disclosed in the '265 patent.*** *Graver Tank & Mfg. Co.* v. *Linde Air Prod. Co.*, 339 U.S. 605, 608-09 (1950) (*Graver II*).

There was no inconsistent application of the statute by the Court of Appeals to the issues of validity and infringement. On validity, the two inoperative salts (neither of which is described in the specification) were found not to be equivalents of the disclosed materials. On infringement, Scott's method of applying DSMA to turf was found to be an equivalent method of applying a disclosed material. The controlling factor is that in reaching each determination of equivalency, or lack thereof, the Sixth Circuit employed the same legal standard, *Graver II*.****

Nor was there any inconsistent application of the statute to the issues of validity and misuse (collection of royalties

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* Pet., A-8a.

** Pet., A-11a.

*** Pet., A-9a-11a.

**** Pet., A-8a, 10a-11a.

for the post-emergent use of AMA and CPA). AMA, an amine salt of methyl arsonic acid, and CPA, the calcium salt of propyl arsonic acid, are each within the literal terms of claims 2 and 5 of the '265 patent.* When either salt is applied post-emergently to an area containing crabgrass and desirable grass, the crabgrass is destroyed without material damage to the desirable grass.** Each of these salts does the same thing, in the same way and with the same result, as the salts disclosed in the specification of the patent. Under *Graver II*, they are equivalents of the disclosed salts. When claims 2 and 5 are construed under the third paragraph of § 112 to cover the ". . . materials, or acts described in the specification and equivalents thereof," the respective claims therefore cover the post-emergent use of AMA and CPA for the selective control of crabgrass, thereby justifying the collection of royalties for such use of those salts. When the Sixth Circuit upheld the validity of claim 2 by contruing it under the third paragraph of § 112, and *Graver II*, it applied the same legal standard (the statute and the doctrine of equivalents) in adjudging validity as it did in justifying the collection of royalties for the post-emergent use of AMA and CPA.***

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* A-36b; PX-202, Col. 6, lines 5 and 9; R.II. 215.

** A-28b, 30b.

*** Pet., A-14a. The Sixth Circuit explicitly relied upon § 112 and a case from its own circuit on the doctrine of equivalents Maxon v. Maxon Constr. Co., 395 F.2d 330, 334-35 (6th Cir. 1968) (Patentee "may claim infringement if another uses the principle and appropriates the substance of his invention)."

REASONS FOR DENYING THE WRIT

I.

Question one, when properly delimited by Petitioner's abandonment of issues in the courts below, presents no question other than of the correctness of the narrow holding below that the enactment of the third paragraph of 35 U.S.C. § 112 had effected a limited modification of the Sixth Circuit's *Kalle* rule. There is no conflict of circuits nor a question of national importance.

Scott urges the present case as the vehicle for this Court to undertake an overall review of the requirements of the three paragraphs of § 112.* The undercarriage here will not bear the load.

The first paragraph of § 112 requires that the patent teach the art how to practice the invention.** Scott raised this issue in the District Court, lost on the facts and conceded that there was no clear error. The issue is no longer in the case. *Supra* 9.

The second paragraph of § 112 and *Wabash, supra,* require that the claims particularly point out and distinctly claim the invention so that persons skilled in the art (and their patent attorneys) are apprised of what is the domain of the patent and what is still open to them.*** Scott also raised this issue in the District Court, lost on the facts and conceded there was no clear error. *Supra* 5-6. Again, the issue is no longer in the case.

In addition to pointing out Scott's failure to raise those issues in the Sixth Circuit, as a reason for denying the

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* Pet. 11.

** Pet. 3-4.

*** Pet. 4.

writ, we stress that Scott had a full hearing in the District Court and lost each issue on the facts. We submit that those factual determinations should not be reviewed by this Court.

The third paragraph of § 112 specifies that when the element in a claim is expressed in the form prescribed, the claim "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."* The statutory language is mandatory ("shall") and precise. There is no uncertainty as to the scope of a claim falling within that paragraph of the statute: the claim covers the structure, materials or acts disclosed in the specification and their equivalents. The various structure, materials and acts disclosed in the specification of the patent are self-evident. Their equivalents are determined by the doctrine of equivalents, a doctrine rooted in patent case law years prior to enactment of the Patent Act of 1952,** and exemplified and restated in *Graver II*.

In the present case, the Sixth Circuit: held that claim 2 of the '265 patent was a claim that fell within the form prescribed by the statute;*** used the same legal standard when it applied the statute to the issues of validity, infringement, and misuse, *supra* 10-11; found that the inoperability of two non-disclosed compounds did not invalidate the claim;**** and found that Scott's dry method of employing DSMA, a disclosed compound, was an infringing equivalent of the disclosed spray method.*****

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* Pet. 4.

** Winans v. Denmead, 56 U.S. (15 How.) 545 (1853); Machine Co. v. Murphy, 97 U.S. 120 (1877); Westinghouse v. Boyden Power Brake Co., 170 U.S. 537 (1898).

*** Pet., A-8a.

**** Pet., A-8a, 9a.

***** Pet., A-9a-11a.

Scott first learned of DSMA's efficacy as a selective crabgrass herbicide from the inventor, Schwerdle, and, during the first year Scott's DSMA product "Clout" was on the market, was a royalty-paying licensee under the '265 patent.* The following year, Scott refused to pay royalties, asserting that the dry method of applying Clout did not infringe. It did not question the patent's validity.**

The '265 patent in suit expired on May 11, 1971. The Sixth Circuit having held Scott liable for infringement and the patent valid and enforceable, the Trustees are asking only for an accounting of pre-expiration damages, *viz.* the same royalty that the other licensees (and Scott for a year) have paid, plus interest.***

In view of the issues raised by Scott in the District Court, but abandoned on appeal, *supra* 2-6, all that Scott may properly seek to have this Court do is review the correctness of the Sixth Circuit's determination that the statute has modified the circuit's *Kalle* rule, and to review the correctness of the factual findings below that the two non-disclosed, inoperable salts are not equivalents of the disclosed salts, and that Scott's dry method of applying DSMA is an equivalent of the disclosed spray method.

There is no conflict of circuits on those findings; they were decided only in the Sixth Circuit; *Layne & Bowler Corp.* v. *Western Well Works, Inc.*, 261 U.S. 387, 392-93

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* A-7b-8b. Fifty-nine licenses, including the one to Scott, were granted. PX-181.

** Paragraph 7 of Scott's license, PX-8, R.II.27, 30, expressly gave Scott the right to terminate for any reason on thirty days' notice. The then-existing (1957) rule of licensee estoppel, *see* Lear, Inc. v. Adkins, 395 U.S. 653 (1969), was therefore not a barrier to Scott's asserting that the patent was invalid either in view of the prior art or because of the existence of inoperable compounds.

*** Trustees reserve their rights, if any, to further monetary relief under 35 U.S.C. §§ 284 and 285.

(1923) and *Keller* v. *Adams-Campbell Co.*, 264 U.S. 314, 319-20 (1924). The patent has expired and there are no pending actions involving it other than the present suit, which continues only for the purpose of an accounting for pre-expiration damages. *Rice* v. *Sioux City Mem. Park Cemetary, Inc.*, 349 U.S. 70, 74 (1955).

II.

The Courts of Appeal are not applying a "double standard of claim construction (limited for validity, broad for infringement)" under the third paragraph of § 112.* The circuits are construing § 112 in an even-handed manner that does not encourage over-claiming.

The Sixth Circuit, herein, employed the same legal standard on the issues of validity, infringement, and misuse. *Supra*, 10-11. The so-called "overclaiming"** of claim 2 was not inclusive of the prior art, *supra*, 4, or of something the inventor had given up in the Patent Office as a condition to the grant of the patent, *Schriber-Schroth Co.* v. *Cleveland Trust Co.*, 311 U.S. 211 (1940); nor did claim 2 distinguish from the prior art solely in terms of a statement of function or result, *O'Reilly* v. *Morse*, 56 U.S. (15 How.) 402 (1853) (leading case). The "overclaiming" was a *de minimis* inclusion, within the literal reach of the claim, of *two* inoperable salts whose efficacy could be determined (and was by Scott) by one routine test. *Supra*, 9.***

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* Pet. 19.

** Pet. 5.

*** *Compare* Lundberg, Application of, 244 F.2d 543, 547 (C.C.P.A. 1957) *and* Siegel v. Watson, 156 F.Supp. 820, 821 (D.D.C. 1957), *aff'd*, 267 F.2d 621 (D.C. Cir. 1959) (application denied; claims held unpatentable over the prior art where both

(footnote continued on following page)

In *Ansul Co.* v. *Uniroyal, Inc.*, 301 F.Supp. 273 (S.D.N.Y., 1969), the Court held that claims to a method of treating plants with maleic hydrazide and its salts was not rendered invalid under § 112 in the face of evidence that some salts would be inoperative, the Court stating at 288-89:

> "The fact that a claim may include salts that are inoperative for the uses claimed does not necessarily call for its invalidation. Yosemite Chemical Company v. United States, 175 Ct. Cl. 623, 360 F.2d 948, 951-952 (1966). The law is not blind to the problems faced by a patentee in a situation of the type presented here. Against the policy in favor of precise claiming we must balance that encouraging early disclosure, particularly of major developments. If we were to hold Claim 7 invalid because of the use of the term 'salts,' this advance in the art would probably still be undisclosed because of the infinite number of salts that the patentee would have to test before being willing to make his disclosure. On the other hand, the evidence amply indicated that those skilled in the art had no difficulty in relying on their skill to determine which salts of the dione they should use. No substantial or difficult experimentation was required for this purpose; the specification served as an effective teacher and it was well known in the art that certain salts would be toxic or prevent absorption of the dione by the plant. Consequently, as to those to whom the patent was directed, the term 'salts' was not too broad." [301 F.Supp. at 288-89].

(footnote continued from preceding page)

the structural and functional limitations of the claims were directly set forth or reasonably suggested by the references of record), *with* Fuetterer, Application of, 319 F.2d 259, 265 (C.C.P.A. 1963) *and* Barr, Application of, 444 F.2d 588 (C.C.P.A. 1971) (application granted; inoperability of salts bears only on sufficiency of invention description, to one skilled in the art, under the *first* paragraph of § 112); *supra* 7, 9-10.

The Second Circuit specifically affirmed the District Court holding in *Ansul Co.* v. *Uniroyal, Inc.*, 448 F.2d 872, 879 (2d Cir. 1971).

The issue of a "double standard" of claim interpretation was raised in the Third Circuit, in *Devex Corp.* v. *General Motors Corp.*, 467 F.2d 257, 261-62 (3d Cir. 1972). The Court, however, did not employ such a standard. It found the claim in suit infringed "even as restricted and held valid in the Seventh Circuit."

There was no use of the statute as a double standard by the Fourth Circuit, in *Wilcox Mfg. Co.* v. *Eastern Gas and Fuel Assoc.*, 400 F.2d 960, 962-64 (4th Cir. 1968), although the patentee was indeed seeking to have the Court employ the statute in a contradictory manner. The Court found that reciprocation of the augers had been represented to the Patent Office as the "vital element" of the invention, but was the very thing omitted from the defendant's accused structure.

The patent was invalidated by the Fourth Circuit on the ground of prior public use and on the further ground that the claims, as asserted against a device that omitted reciprocation, had overclaimed the invention and lacked support in the specification, citing *Graver Tank & Mfg. Co.* v. *Linde Air Prod. Co.*, 336 U.S. 271 (1949) (*Graver I*). The Fourth Circuit refused to save the claim, by construing it in accordance with the third paragraph of § 112, because of the patentee's contradictory requests that the court use the statute to construe the claims to include "reciprocation", when validiy was in question, but omit it in order to find infringement.

It is important to note that in *Wilcox* the Fourth Circuit did *not* hold that *Graver I* was a bar to a saving construction, under the third paragraph of § 112, of the otherwise overbroad claims. To the contrary, after discussing *Graver I*, the Court of Appeals recognized that the statute

allowed the claims to be construed to cover the elements disclosed in the specification (reciprocating augers), but the court declined to use the statute to effectuate the patentee's request for a double standard of claim construction.

Scott errs in its statement* that the holding of *Wilcox* is in "direct opposition" to the decision of the Sixth Circuit, herein. The error is engendered by Scott's expedient stoppage of a quoted passage** in the middle of a paragraph and its similar omission of the succeeding paragraph. A fair and full reading of the quotation establishes that there is no conflict; *Graver I* did not preclude resort to the statute, the patentee's contradictory positions did.***

In the Fifth Circuit, in *Bryan* v. *Sid W. Richardson, Inc.*, 254 F.2d 191, 193-95 (5th Cir. 1958), it was the infringer, Bryan, and not the patentee, who was seeking a double standard of claim construction. He argued that the claim should be construed broadly when validity was at issue, so as to make easier its invalidation, but narrowly when determining infringement.

> "In this predicament Bryan's very able counsel now likewise champions the idea of novelty. But confining novelty to the manner in which the valve is moved laterally and is seated or unseated, he now levels the

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* Pet. 7-8.

** Pet. 8.

*** "Nor can this attempt be justified under 35 U.S.C. § 112 which *allows* the use of the term 'mean', as it appears in the Wilcox claims, to bring into the claims of a combination patent any element described in the specifications. [Scott's quotation ends here.] For the introduction is directly contrary to Wilcox's insistent interpretation of its claims—that they cover a machine, such as the Jeffrey, which has no reciprocation.

"*Thus Wilcox assumes contradictory positions.* On one hand, it asks the Court to *read reciprocation into the claims in order to preserve the validity* of its patent, but on other other hand to *read it out in order to find infringement* by the Jeffrey."

concentrated attack on the claims. Here again it is accompanied with that traditional flexibility seemingly inherent in the art of patent law in which, for validity the protest is that the claim is too broad, while for infringement it is to be narrowly and literally applied." [254 F.2d at 193]

The court rejected Bryan's argument, uniformly applied the third paragraph of § 112 to the two issues, and found the '162 patent valid and infringed.

"When the claim with this language in it is construed in the light of the disclosures of the patent, it does not grant a monopoly on every means or mode by which that result could be achieved. As the Act phrases it, these are confined to corresponding structures or acts described in the specification and equivalents thereof. Our discussion of infringement will demonstrate that the Court's findings of equivalency on these elements is likewise supported." [254 F.2d at 195]

The Ninth Circuit, in *Stearns* v. *Tinker & Rasor*, 252 F.2d 589, 597-98 (9th Cir. 1957), was not faced with a double-standard situation; the only question was whether the accused Tinker & Rasor sleeve bearing was the equivalent of the patent's disclosed rollers or wheels. The case further illustrates the uniformity with which the Courts of Appeal have construed the statute.

". . . We construe the section to mean that while an element in a claim for a combination may be expressed as a means or step for performing a function without recital of structure, material or acts in support thereof; the structure, material or acts may be described in the specification, and if so described, the claim will be construed to cover that which is described *and the equivalents thereof*. But the structure need not as well be recited in the claim. The question then becomes whether the rollers or wheels

shown in the specification (as Stearns' best mode of carrying out its invention as required and permitted by the first paragraph of Section 112) are equivalent to the sleeve bearing on the pusher-contactor of Tinker & Rasor's detector." (Emphasis in original). [252 F.2d at 597-98]

That the district courts are construing the statute in the same manner as the circuit courts is illustrated by *Technicron Instruments Corp.* v. *Coleman Instruments, Inc.*, 255 F.Supp. 630, 641 (N.D. Ill. 1966), aff'd, 385 F.2d 391, 394 (7th Cir. 1967), wherein the patent was held valid and infringed.*

> "Where infringement is charged of a claim for a combination having one or more elements expressed as a means or step for performing a specific function without the recital of structure, material, or acts in support thereof, Title 35 U.S.C. § 112 *requires* construction of the claim to cover both the corresponding structure, material, or acts described in the specification and equivalents thereof. What constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case. The first inquiry as to infringement of such claim is whether there is infringement of the terms of the claim, but this does not end the matter. Infringement is found where application of claim phraseology reads on the accused device and there is real identity of means, operation and result between the accused device and of the device shown in the patent." [255 F. Supp. at 641]

The cases, discussed above, establish that there is no trend in the circuits toward a double-standard of claim

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* *See e.g.*, Wolowitz v. Gulf Oil Corp., 255 F.Supp. 100, 114 (D.D.C. 1966) *aff'd per curiam*, 379 F.2d 452 (D.C. Cir. 1967).

interpretation. The Courts of Appeal, without exception, have rejected that approach and have even-handedly applied the third paragraph of § 112 to the issues of validity and infringement.

Further, the cases refute in full Scott's assertion that unless the writ is granted the coverage of a claim in the form prescribed by the third paragraph of § 112 will be measured in the courts by an "uncertain and unpredictable judicial restatement."*

There is no ambiguity or uncertainty that needs clarification by this Court. The decisions are clear and uniform in their construction of the statute: the claim covers the structure, materials or acts disclosed in the specification and their equivalents.

Question 3.

SUMMARY STATEMENT

Both the Sixth Circuit and the District Court found (1) that the settlement of the Vineland-Cleary litigation was the *bona fide* resolution of a genuine dispute over ownership of the '265 patent, and (2) that the terms of the settlement contained affirmative provisions which assure freedom of competition in unpatented commodities.

As to Question 3, Scott's representation of the Sixth Circuit's holding on misuse is erroneous. The Sixth Circuit did not find that Vineland and Cleary had, through agreement, placed in their control all matters of substance affecting the enforcement and exploitation of the patent. On the contrary, both the Sixth Circuit and the District Court found (1) that the trust agreement was in settlement of a *bona fide* dispute over the ownership of the patent in suit, and (2) that the agreement was not a *per se* misuse.

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* Pet. 13.

The holding was that there was no *per se* misuse*, and was based on the specific findings by the Court of Appeals and the District Court: that the litigation over ownership of the '265 patent was not a sham**; that freedom of competition in unpatented commodities was guaranteed by the affirmative provisions of the settlement agreements and of the form patent licenses**; and that the rights retained by the beneficial co-owners of the patent, Vineland and Cleary, were the legitimate attributes of patent ownership.***

Scott's third question wholly ignores these findings and, instead, proceeds on the erroneous premises (1) that the settlement gave Vineland and Cleary the power to restrict competition, (2) that Vineland and Cleary were nothing more than licensees under the '265 patent, and (3) that the settlement was a "private" affair.

Counterstatement of Question 3.

"Does the record support the findings of the courts below that the Vineland-Cleary controversy was not a sham, and that the settlement agreements and form licenses contain affirmative provisions which assure free competition?"

Counterstatement of the Case on Question 3.

In the courts below, Scott launched a double-barreled attack: first, Scott asserted that the settlement of the title fight gave Vineland and Clearly the power (though not exercised) to restrict the grant of licenses only to persons who bought DSMA from them; and, second, Scott argued

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* Pet., A-12a.

** Pet., A-12a; A-33b.

*** A-34b.

that competition in the sale of DSMA had in fact been restrained. The courts below found against Scott on factual grounds on both points. In this Court, Scott seeks review only of the correctness of the lower courts' findings on the first point: the existence or not of the power to restrain competition.

The agreement of April, 1959 between Cleary and Vineland that is said to be evil was in settlement of a bitterly contested litigation in the District of New Jersey over ownership of the Schwerdle patent. Schwerdle held the legal title but Cleary claimed it, saying the invention was made while Schwerdle was employed by Cleary's subsidiary company, ARA, and while Schwerdle was under duty to assign patent rights to ARA.* After a full trial, but prior to entry of judgment, the settlement was worked out with the knowledge and approval of the Court.

The settlement made neither Cleary nor Vineland the sole owner. Neither would capitulate and yield to the other. Because of the personal hostility between Messrs. Cleary and Schwerdle, a joint management was not a workable solution.** To avoid their having to face each other, legal ownership of the patent was given to plaintiffs in trust, with the necessary charter for its management by the Trustees. Cleary and Vineland became beneficial co-owners of the patent and of the trust income.***

Specifically, the settlement did this. To clear the slate, it released Cleary and Vineland, and their customers, from all liability for past infringement.**** It transferred to the Trustees the patent and the licensor rights under all

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* Pet., A-3a.

** A-34b.

*** A-6b; Pet., A-3a.

**** A-6b-7b; DX-16, 17, R.II. 317-18.

license previously granted by Vineland.* It provided licenses under the patent to Cleary Co., ARA and Vineland.**

To assure free competition by others in unpatented supplies, e.g. DSMA, used in the patented process, it made it a *duty* of the Trustees to issue licenses to all users, and to all reputable and responsible formulators, who might request a license [PF 14.3, 14.3.2, 16.2.1 to 16.2.3, R.II. 15, 16, 18] and it prescribed a form of uniform license with a clause making the license utterly independent of where the licensee bought the unpatented chemical for use in the licensed process.*** The District Court specifically found that each license under the '265 patent contained that clause.****

The settlement also fixed the uniform royalty to be paid by all licensees, including Vineland and Cleary (the royalty rate being the one Vineland had established for earlier licenses granted by it), with a provision assuring to all licensees the benefit of any more favorable terms as to royalty rate ever given to any one licensee [A-33b; DX-8, 10, 12, 13, R.II. 287-292, 294-298, 300-304, PF 14.3.1, 14.3.1.2, RII. 15; Tr. 156-157, R. 134-135; PX-181, page T4494, para. No. 7. R.II. 90].

The requirement that all licenses be of the standard form was a guaranty that every license would contain the clauses giving the licensee complete freedom to purchase

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* DX-6, 7, 7A, R.II. 277-86.

** DX-14, 15, R.II. 305-16; DX-7, R.II. 282-84, 319-23.

*** "Licensee is under no obligation, either as a condition to the granting of this license or the maintenance of it in force, to purchase unpatented arsonic acid compounds or any other material from licensor or any designee of licensor, it being expressly understood and agreed that licensee may purchase unpatented arsonic acid compounds and any other unpatented material from any source it desires" [DX-10; A-19b].

**** A-19b.

unpatented commodities from any source and assuring the licensee that there would be no royalty discrimination.* The Trustees promptly listed the patent on the Patent Office register of patents available for licensing and this listing was published in the Official Gazette in September, 1959.** The Trustees have never refused to grant anyone a license under the '265 patent,*** and, it is an agreed fact that the grant of a license has never been conditioned on the prospective licensee's agreement to purchase DSMA from either Cleary or Vineland.****

Reasons for Denying the Writ.

The terms of the settlement agreements and of the form licenses prevent a "tie-in" misuse.

The affirmative provisions noted above were the now conventional ones that are necessary and are effective to avoid a misuse of a patent such as was held to make a patent unenforceable in *Mercoid* and in *Morton Salt*, and earlier cases. ***** The essence of the fact situation in such cases is that the patent claims a combination or a process, and that what the patentee or his licensee sells is a commodity or "supply", not patented in itself, for use in the patented combination or process. The evil comes about when the patentee grants licenses only through the sale to ultimate users of the combination or the process of the unpatented "supply", and therefore only when they buy the unpatented supply from him or from his licensee. Such

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* A-33b.

** A-19b-20b; PX-183, R.II. 100-108.

*** PF 16.2.1—16.2.3, R.II. 18.

**** PF 16.3.1, R.II. 19.

***** Mercoid Corporation v. Mid-Continent Investment Co., 320 U.S. 661 (1944); Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488 (1942).

a practice is equivalent to licensing upon the express "tie-in" condition that the licensee buy the unpatented supply from him or his licensee.*

The purpose of the doctrine of misuse is to compel unrestricted licensing on uniform terms whenever the patentee engages in, or licenses those engaged in, the business of selling the unpatented "supply". There must be no restriction as to the source of the "supply" and no discrimination that slants the business of supply toward one supplier rather than another.**

It will be evident that the settlement agreement and form license in question here were drafted with full awareness of this state of the law, and were carefully made to avoid any tie-in so as to assure the free and open competition in the sale of the "supply" (e.g. DSMA) for the patented process which is necessary if misuse is to be avoided.

The terms of the settlement require the grant of non-discriminatory licenses.

The settlement agreement cannot be allied to the agreements in the cases cited by Scott*** in which competitors join forces, whether by license agreements or otherwise, in order to manage a patent jointly, for the purpose and with the effect of restricting competition. The patent in those cases was a patent to which one of the parties had a clear title and which but for the agreement, he could manage at his sole pleasure, licensing when, if and how he chose. As

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* Lincoln Electric Co. v. Linde Air Prod. Co., 171 F.2d 223, 224 (6 Cir. 1948).

** United States Plywood Corp. v. General Plywood Corp., 370 F.2d 500, 507 (6 Cir. 1966); Kolene Corp. v. Motor City Metal Treating, Inc., 307 F.Supp. 1251, 1266-67 (E.D. Mich. 1969), aff'd, 440 F.2d 77, 83-85 (6 Cir. 1971).

*** Pet. 18-19.

those cases show, the prime evil in such agreements is the restriction upon the grant of licenses to competitors, which is not present here because of the duty imposed on the Trustees to grant non-discriminatory licenses to all. [DX-1, Sect. III, para. 1, R.II. 238-239].

In *United States* v. *Besser Mfg. Co.*, 96 F.Supp. 304 (E.D. Mich. 1951), aff'd 343 U.S. 444 (1952), the settlement of a patent infringement action gave Sterns and Besser (who had an "overwhelming" position in the industry with the correlative power to control prices) an exclusive license to use under the Gelbman-Andrus patents in suit to which Besser-Sterns had previously laid no ownership claim. And, the settlement prohibited Gelbman-Andrus from making any further grant of a license to anyone except on Besser-Sterns' consent, and vice versa. 96 F.Supp. at 310.

The Court found that the settlement contract taken in conjunction with the numerous, other, identified acts of Besser, were an illegal attempt to monopolize commerce in concrete block machines. 96 F.Supp. at 314. Specifically, the vice of the settlement contract was that it "virtually made it impossible for others to obtain rights under those patents" because it required Besser's, Stern's, Gelbman's and Andrus' "joint consent before licensing others." 96 F.Supp. at 311. To restore free competition in concrete block machines, the Court ordered that licenses under the Gelbman-Andrus patents "be made available to everyone in the industry on the same terms." 96 F.Supp. at 314.

That requirement, to issue licenses on the same terms to all, is the very duty which the Trust Agreement itself imposes on the Trustees, which the evidence herein shows has been scrupulously followed, and which distinguishes the *Besser* line of cases from the facts of the present action.

Again, in the *Clapper* cases, *Mason City Tent & Awning Co.* v. *Clapper*, 144 F.Supp. 754 (W.D. Mo. 1956), *Clapper*

v. *Original Tractor Cab Co.*, 165 F.Supp. 565 (S.D. Ind. 1958), and *Clapper* v. *Original Tractor Cab Co.*, 270 F.2d 616 (7 Cir. 1959), the vice of the settlement contract was that Flora, Clapper and Halligan had agreed that neither Flora nor Clapper would thereafter grant a license under any of their own patents "without first obtaining the written consent thereto of the remaining parties to (the) agreement." 144 F.Supp. at pp. 759, 764, 766-767, and 165 F.Supp. at 569, 572-73, 576.

And, in *United States* v. *Krasnov*, 143 F.Supp. 184 (E.D. Pa. 1956), aff'd, 355 U.S. 5 (1957), [a relevant case not cited by Scott] the October 4, 1938 agreement between Comfy, the assignee of the Oppenheimer '868 patent, and Sure-Fit, who had no ownership interest whatever in it, specified that Comfy would license Sure-Fit under '868, and that thereafter "Comfy would not grant licenses to others under the Oppenheimer patent without Sure-Fit's consent." 143 F.Supp. at 189, 192, 20-02. The acts of Comfy and Sure-Fit of fixing prices, of jointly determining to bring infringement actions against retailers in a manner calculated to intimidate the trade while running from any real test of the patent's validity, and of granting licenses to third-parties only when absolutely necessary to do so to avoid a test of validity and then only by mutual consent, were held to be an unreasonable restraint of trade. 143 F.Supp. at 198-99. In so holding, however, the Court took care to point out that under the holding of *Standard Oil Co.* v. *United States*, 283 U.S. 163 (1931), "a pooling agreement or cross-licensing between competitors is not illegal in and of itself. . . ." 143 F.Supp. at 199.

The arrangements in *Besser, Mason City, Clapper* and *Krasnov* therefore stand condemned in violation of the Constitutional* purpose of the patent laws "to promote the progress of science and useful arts" because of their un-

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* United States Constitution, Art. 1, Sec. 8.

justified freezing of the licensing of technology, i.e. in each case the patentee could not license the technology covered by his patent without the consent of persons who had no ownership interest in it. The facts in the case at bar show nothing of that sort, either as to the licensing by the Trustees, the relation of the parties or the origin of the agreement, *Supra,* 23-25.

The flaw in Scott's argument in favor of the writ is that it casts the parties, Cleary and Vineland, simply as "licensee-competitors" in the sale of DSMA or DSMA formulations.*

Cleary and Vineland were indeed competitors in DSMA, but in the settlement it was not as competitors that they confronted each other. The matter would have been the same if neither of them had been making and selling anything for use in the patented process. They had faced off as hostile rival claimants to ownership of the patent. [PF 13.1, 13.5 to 13.5.2, R.II. 10, 11-12]. Vineland held the legal title, but that was only a nominal status until it could establish its right to it as against Cleary's claim to the equitable title and to a right to have the legal title handed over to it. They had gone through a litigation without getting a decision of the issue, and both were faced with further litigation, likely to be long and costly. Their only common ground was that they both were in for further heavy expense and that neither could expect any real royalty while the issue went unresolved. The fight itself was impairing the value of the asset about which they were fighting. The cloud on the title had to be removed before the patent could be enforced, and before licensees could know to whom a royalty should be paid.

The impact of the controversy on Scott epitomizes the situation confronting Cleary and Vineland in 1959 when

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* Pet. 18.

the litigation failed to resolve the title question. Scott in 1956 took a license from Vineland. [PF 5.4, R.II. 5; PX-8, R.II. 27-32]. In 1957, disliking Cleary, Scott gave its sympathy to Vineland [PX-132, R.II. 59], but not its money. It had its lawyer look fully into the title controversy, and was advised by him, in effect, that although he thought the odds were with Vineland, it was still a ball game which either party might win. [PX-134, R.II. 60-62]. Scott then considered for a time the honorable course of paying its royalties into escrow, because of the uncertainty as to which contender was the owner entitled to collect; but in the end it opted not to pay at all. [PX-136 to 141, R.II. 63-70; PF 5.15 to 5.19, R.II. 5-6].

In summary, the trust agreement made it a duty of the Trustees to grant non-discriminatory licenses to all. No one who sought a license was refused; fifty-nine were granted; and every license contained a "favored nations" clause, assuring that no licensee would pay a higher royalty than Vineland or Cleary or any other licensee. The purpose of the trust agreement was to provide a practical method of facilitating the grant of licenses under the '265 patent and the collection of royalties thereunder for distribution to the beneficial co-owners, Vineland and Cleary.*

The case at bar is quite different from the *Besser* line of cases in which, as one part of a combination having a purpose of trade restraint, a patent owner having unquestioned title to the patent and the right to license it agrees with a competitor that he will not exercise that right without the competitor's assent or will exercise it at the competitor's behest.

The record fully supports the findings of the District Court and the Sixth Circuit that the settlement agreements contained "affirmative provisions which assure free com-

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* A-18b.

petition."* There was no grant of power to restrain competition; there has not been an "erosion" of the *Besser* rule.

The settlement was not a private arrangement to restrict competition.

Scott's third question calls the settlement papers "private agreements" in the evident hope of having this Court believe there was something underhanded in the circumstances surrounding the settlement and the establishment of the trust. The truth of the matter is that Judge Madden (the trial judge in the Vineland-Cleary title fight) was informed of the settlement and gave full consideration to the question of allowing the parties to settle or not, even to the extent of consulting with his brothers on the Bench.**

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* Pet., A-12a.

** DX-51; R.II. 329-332. This is borne out by what Judge Madden had to say about the settlement of the Cleary-Vineland litigation in 1967 in Scott's then-pending antitrust action against the Trustees, *et al.* (in which Scott alleged, as it does here, that the settlement was *per se* unlawful):

> "After a prolonged trial and submission of briefs the Court drafted and filed an Opinion which, for what it considered cogent reasons, the Court subsequently saw fit to withdraw and impound. After this action on the part of the Court, the parties settled their differences (with approval of the Court) and entered into an agreement setting forth the terms of the settlement. Under the agreement defendants Noll and O'Brien were to be appointed as Trustees and all rights, title and interest in the use patent were to be assigned to them for the purpose of issuing licenses and collecting royalties in accordance with the settlement agreement.
>
> "It should be borne in mind that *the settlement reached by the parties was examined by this Court* and approved as fair and equitable to the parties and to the public. This, however, does not render the matter res judicata but it does disclose an open and above-board approach to the settlement of a difficult problem after an extensive trial wherein the utmost antagonism was displayed by the litigants toward each other." [PX-182; R.II.91, 93-94. The anti-trust action was administratively terminated without prejudice in 1969.]

Trustees did not argue in the courts below, nor do they here, that the settlement is immune from collateral attack by Scott by reason of Judge Madden's approval of it. Judge Madden's statements do confirm, however, that the settlement was in fact "open and above-board".

Finally, on the matter of the collection of royalties for the post-emergent use of AMA and CPA in the selective destruction of crabgrass, there is no question of misuse because the Court of Appeals affirmed the finding of the District Court that the Trustees did not extract royalties knowing these products to be beyond the scope of the patent.•

CONCLUSION

The petition should be denied.

Respectfully submitted,

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April 16, 1973.

• Pet., A-13a, 15a; A-36b-37b.

APPENDIX

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IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
EASTERN DIVISION

[Civil Action 6319]

Opinion

This action arises under the patent laws of the United States, Title 35, United States Code. It is based upon the alleged infringement of Claim 2 of United States Patent Number 2,678,265 ('265 patent) issued May 11, 1954. Legal title to the '265 patent is, by assignment, vested in plaintiffs, Clyde M. Noll and S. Joseph Fortunato as trustees under a Trust Agreement of April 3, 1959. The beneficiaries of the trust are Arthur Schwerdle, Miriam Schwerdle, Vineland Chemical Company (Vineland), the W. C. Cleary Corporation (Cleary) and American Research Associates (ARA).

This Court has jurisdiction of the subject matter and of the parties under the provisions of 28 U.S.C.A. §§1338(a) and 1400(b).

Plaintiffs, the trustees, are residents of New Jersey and their address in their position as trustees is 382 Springfield Avenue, Summit, New Jersey.

Defendant O. M. Scott & Sons Company (Scott) is an Ohio corporation having a regular and established place of business at Marysville, Ohio, within the Southern District of Ohio, Eastern Division.

The patented subject, as asserted by plaintiffs against Scott, is a method of selectively controlling the growth of crabgrass by applying to a lawn containing crabgrass a sodium salt of methyl arsonic acid in a concentration and amount sufficient to destroy the crabgrass but not the desirable lawn grasses.

Scott is charged with infringement of Claim 2 of the '265 patent under 35 U.S.C.A. §271(a) by its own use of Clout, a commercial product containing disodium methylarsonate, for the selective control of crabgrass subsequent to March 29, 1957, and with actively inducing infringement of Claim 2 of the '265 patent under 35 U.S.C.A. §271(b), subsequent to March 29, 1957, by packaging and selling Clout, in final retail form, in containers that bear instructions for the use of Clout to selectively control crabgrass, by advertising the use of Clout for the selective control of crabgrass and by otherwise promoting that use.

Plaintiffs seek an injunction against further infringement, 35 U.S.C.A. §283, and an award of damages with interest, together with a three-fold increase of such award because of the character and circumstances of the infringement, 35 U.S.C.A. §284, an assessment of costs against defendant and an award of a reasonable attorney's fee, 35 U.S.C.A. §285.

Scotts asserts that the '265 patent has been rendered unenforceable by reason of its misuse; that the '265 patent is invalid; and that Scott has neither infringed the '265 patent nor induced others to infringe it.[1]

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[1] Scott also contends the action should be dismissed for failure to join as indispensible parties, Arthur Schwerdle, Miriam Schwerdle, the Vineland Chemical Company, the W. A. Cleary Corporation and American Research Associates, Inc. Plaintiff's motion to dismiss on this ground was denied by the Court's order of January 22, 1969. The final pretrial order filed April 3, 1970 provides this issue was not to be litigated at trial. Defendant contends in his post trial brief that evidence adduced at trial supports his motion to dismiss for failure to join indispensible parties. Defendant renewed its motion to dismiss for failure to join indispensible parties at the conclusion of the trial. The Court determines the motion to dismiss for failure to join indispensible parties has been finally adjudicated against defendant. The evidence adduced at trial is not persuasive, and the Court holds the motion is without merit.

Findings of Fact Applicable To All Issues

From June, 1945 until August, 1949, Arthur Schwerdle was an officer and employee of ARA.[2] During the period 1945-1949, Sartoretto was using the Rhode Island Experiment Station for field testing work. In 1946 he submitted phenyl mercuric acetate, an organo-mercurial, to the Experiment Station to test the compound as a fungicide. During the testing it was discovered by accident that the compound gave selective control of crabgrass.

Subsequent to that discovery, Schwerdle was in charge of a project for the development of organic arsenicals for testing as selective herbicides for the control of crabgrass.

DSMA was purchased by Schwerdle, while an employee of ARA, on or about June 28, 1948 for testing as a crabgrass control material. During the period 1947, 1948 and 1949, Schwerdle was the person at ARA who was responsible for the project at ARA aimed at developing organic arsenicals for testing as selective herbicides, primarily as crabgrass killers.

On or about May 27, 1949, Schwerdle sent five chemicals to DeFrance at Rhode Island University to be tested on behalf of ARA as possible crabgrass herbicides. Those chemicals were identified by ARA's code numbers as "MQ 132", "MQ 133", "MQ 134", "MQ 135" and "MQ 136". In the summer of 1949, each of those "MQ" chemicals was tested by DeFrance, on behalf of ARA, for herbicidal activity as a selective crabgrass control material. DeFrance's November, 1949 report to ARA of the results of his testing of those materials indicated that compounds "MQ 133" and "MQ

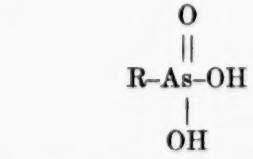
[2] ARA was formed by an agreement dated June 2, 1945 entered into among five individuals: W. A. Cleary, Russel Cook, Morgan Seifert (those three persons being officers of W. A. Cleary Corporation), Paul Sartoretto and Schwerdle. Sartoretto and Schwerdle each received twenty-five percent of the stock of ARA; Cleary, Cook and Seifert each received one-third of the remaining fifty percent of the stock.

134" gave the best control of the entire group. Neither "MQ 133" nor "MQ 134" was DSMA. The chemical that was identified by ARA's code symbol as "MQ 135" and which was sent to DeFrance in May, 1949 and tested by him in the summer of 1949 for selective herbicidal activity against crabgrass, was in fact DSMA.

In August, 1949, Schwerdle left ARA. In September, 1949, Schwerdle and his wife formed a partnership named the Vineland Chemical Company (Vineland). Following his departure from ARA, Schwerdle conducted tests, with the help of his wife, to determine the selective herbicidal activity of DSMA in a lawn, comparing its action on crabgrass with its action on desirable lawn grasses.[3]

In July, 1951, Schwerdle filed the application for a patent that in May, 1954 issued as the patent in suit. United States Patent No. 2,678,265 claims, in relevant part:

1. The method of selectively controlling the growth of crabgrass which comprises applying to an area containing crabgrass a composition comprising a mixture of at least one arsenic compound selected from the group consisting of arsonic acids having the formula:



where R is an aliphatic group selected from the group consisting of methyl, ethyl, propyl, allyl and butyl, and salts thereof; and an inert diluent therefor, in a concentration and amount sufficient to de-

[3] Entries in Schwerdle's work notebook dated September 10, 1949, August 4, 1950, and June 5, 1951, record the results of experiments with DSMA used as a selective crabgrass herbicide as various concentrations and amounts.

stroy crabgrasses but insufficient to destroy material quantities of the useful grasses and plants.

2. The method of claim 1 wherein R is methyl.

The patent claims a method of selective, post-emergent control of crabgrass in lawns by the application to the lawn of a mixture containing an arsonic acid, in particular DSMA, and an inert diluent. The method gives "selective" control because the arsonic acid kills crabgrass without material damage to good grasses. It is "post-emergent" because the arsonic acid is on the crabgrass seedling or plant after it has emerged from the seed laden ground.

On November 2, 1955, counsel for ARA demanded that Vineland assign the legal title of the '265 patent to ARA and offered to reimburse Vineland for all its expenses in securing the patent. On April 23, 1956, Cleary and ARA brought an action against Arthur and Miriam Schwerdle, doing business as Vineland Chemical Company, in the United States District Court for the District of New Jersey.[4]

The pleadings in that action:

(a) Asserted that ARA and Cleary had at least a royalty free shop right to practice the invention of the '265 patent on the theory that the subject matter of the patent had been developed by Schwerdle during his employment with ARA.

(b) Asked that ARA be declared the equitable owner of the patent.

(c) Asked that Vineland be directed to assign legal title to the patent to ARA.

(d) Asserted that defendants were misusing the patent in that they grant licenses for use of the method thereof only upon purchase of the unpat-

[4] *W. A. Cleary Corporation* v. *Schwerdle*, Civ. No. 1036-55 (D. N.J., filed April 23, 1956).

ented materials from defendants or their designees.

On January 9, 1959, after a full trial on the merits, Judge Madden filed an opinion in that action. The opinion did not determine the question of ownership of the '265 patent and did not transfer any ownership in the patent to either of the plaintiffs, Cleary and ARA.

Within about a week of the filing of the opinion, the parties entered into settlement negotiations. These negotiations resulted in a settlement of the action which was embodied in a series of agreements executed on April 3, 1959. Thereafter, the parties to the action jointly requested the judge to withdraw his opinion. No judgment had been entered when the parties requested Judge Madden to withdraw his opinion.

At a hearing before Judge Madden on May 1, 1959, the judge announced his "oral conclusions" in which he approved the withdrawal of his opinion of January 9, 1959. The transcribed "oral conclusions" were filed May 18, 1959. In furtherance of the "oral conclusions" two orders were filed on May 1, 1959; one of the orders modified the opinion of January 9, 1959 and the other order withdrew and impounded the opinion as amended. At the same time, and with the Court's knowledge, the stipulation for the dismissal with prejudice but without adjudication on the merits and without the allowance of costs to either party, was filed by the parties.

Under the settlement agreement of April 3, 1959, at least the legal title in the '265 patent was transferred to the trustees by Vineland, ARA and Cleary, subject to the terms of the trust agreement.

Under the assignment [DX-6],[5] all the parties to the New

[5] Plaintiff's exhibits will be referred to as "PX- —"; defendant's exhibits will be referred to as "DX- —".

Jersey action settled that action by, among other things, assigning to the trustees, subject to the trust agreement:

(a) . . . all of the right, title and interest possessed by said assignor parties jointly and severally, in and to said Letters Patent 2,678,265 and in and to the invention forming the subject matter thereof . . . [Assignment, DX-6, p. 21].

(b) Any and all rights and claims of any nature whatsoever, including license rights, free or otherwise, under said Letters Patent 2,678,265 . . . [Assignment, DX-6, p. 2].

(c) Any and all claims, demands or rights of action which they [the plaintiffs and defendants in CA-1036-55], or any of them, now have, or has, or might have, to recover damages and profits, or either, by reason of any infringement of said Letters Patent 2,678,265 prior to the date of this assignment, together with a right to said trustees . . . to prosecute said claims, demands or rights of action, in their own names, subject to and in accordance with . . . the provisions of said trust agreement. [DX-6, p. 2.]

The Court now turns to the background of Schwerdle's dealings with Scott. In 1950 and in 1951 Schwerdle offered Scott samples of DSMA, identified only as an organo arsenical, for testing as a selective crabgrass controllant. In July, 1951, Scott informed Schwerdle that its tests indicated the material was most selective in its action against crabgrass. Scott requested more of the material for testing.

In the summer of 1954, Vineland began marketing "Crab-E-Rad", a spray formulation of DSMA to be used for the selective control of crabgrass in turf. Scott made inquiries about "Crab-E-Rad". In September, 1954, Schwerdle informed Scott for the first time that DSMA was the herbicidally active ingredient in "Crab-E-Rad" and

identical with the materials sent Scott since 1950. Vineland also sent Scott samples of "Crab-E-Rad" for testing.

Since at least mid 1951, Scott had been considering the use of the Schwerdle materials (DSMA) in a dry formulation. By early October, 1955, Scott had concluded that it was definitely interested in marketing a dry herbicide product containing DSMA for the selective control of crabgrass and inquired whether Schwerdle could supply substantial quantities of DSMA for delivery commencing in early April, 1956.

Later that month, Schwerdle informed Scott that he would be able to supply Scott with a substantial quantity of DSMA, with initial shipments to begin in April, 1956. In November, 1955, Scott entered its order with Vineland for the purchase of a substantial quantity of DSMA to be produced by Vineland and shipped to Scott between April and June, 1956.

In the late spring or early summer of 1956, Scott first placed Clout, a product containing DSMA, on the market. From the spring of 1956 until March 29, 1957, Scott purchased its requirements for DSMA from Vineland and, later, Ansul, and paid to the patentee, Vineland, a royalty of $0.555 per pound. After March 29, 1957, Scott purchased its requirements of DSMA from manufacturers of DSMA other than Vineland without any payment of royalties by Scott to Vineland or, later, to the trustees.

The Legal and Factual Issues Presented at Trial

The Court will now consider the issues of (1) misuse, (2) validity and (3) infringement of the patent. In accordance with the provisions of the Federal Rules of Civil Procedure, the Court will make findings of fact and state conclusions of law with respect to the issues presented for decision.

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I. Misuse

A. Issues on the Question of Misuse. Prior to the trial of this action defendant filed a motion for summary judgment on the ground that the trust established in 1959 which purported to be part of the settlement of *W. A. Cleary Corporation* v. *Schwerdle,* Civil No. 1036-55, (D. N.J., 1959) was and is a concerted action of two competitors, Vineland [6] and Cleary,[7] to control, or gain the power to control, all matters of substance in the commercial utilization and enforcement of the '265 patent, the agreements and actions of Vineland and Cleary constituting patent misuse in *per se* violation of the public policy underlying the patent grant.

Defendant alleges two specifications of patent misuse. First, Vineland and Cleary, competitors in the sale of DSMA to manufacturers of products for the selective control of crabgrass in turf, combined through a set of integrated private agreements to create a position of joint control, through a veto power, over all matters of substance affecting the exploitation and enforcement of the patent in suit.

Second, Vineland and Cleary, through the means described above, extended the patent monopoly by the extraction of royalties from the public for use of compounds for crabgrass control which are not within the scope of the patent.

Defendant's argument as to the first species of misuse is as follows. Defendant contends Vineland was the sole owner of the patent in suit when it was granted in 1954 and that following the issuance of Judge Madden's opinion in *W. A. Cleary Corp.* v. *Vineland,* Civil No. 1036-55, (D.

[6] "Vineland" as used hereinafter refers to the Vineland Chemical Company, the patentee herein, and Arthur and Miriam Schwerdle, its partners, Vineland Chemical Manufacturing Co., Inc., and Vineland Chemical Sales Corporation.

[7] Cleary as used hereinafter refers to the W. A. Cleary Corporation and American Research Associates, Inc. (ARA). ARA is the named party to the trust agreement, but ARA is now owned by the W. A. Cleary Corporation.

N.J., 1959),[8] Vineland and Cleary, competitors in the sale of DSMA to manufacturers of crabgrass control products, decided to merge by combining the one hundred percent interest of Vineland in the '265 patent with the zero interest of Cleary. Defendant argues the dislike of the two competitors for each other was subordinate to their mutual dislike of other actual or potential competitors. The trust, defendant asserts, vests legal ownership of the patent in the competitor's attorneys while placing all normal legal incidents of ownership and control in Vineland and Cleary, which retained a veto power over any effective action under the patent.

Defendant argues the alleged misuse of the patent by a concert of the "competitors", Vineland and Cleary, is shown on the face of that trust agreement:

1. The duties of the trustees are "purely ministerial" (Section IV, paragraph 9).

2. The licenses are granted to third parties and royalties are collected "under the direct supervision and control of Vineland and ARA"[9] (Section IV, paragraph 9).

3. The royalty rate to be paid by third parties is to be "mutually agreed upon by Vineland and ARA" who "directed" the trustees to follow the established royalty rate (Section III, paragraph 1).

4. The trustees are prohibited from granting any licenses under the patent except the standard formulator and user licenses developed and agreed upon jointly by Vineland and Cleary. The standard agreements continue to be offered as long as

[8] See pp. 4-6 above.

[9] ARA is now owned by the W. A. Cleary Corp. ARA is the actual beneficiary of the trust, but because of the identity of ownership is referred to as "Cleary" in this opinion.

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they suit the joint requirements of Vineland and Cleary. Any changes in the standard agreements can be placed in effect any time, but only if "mutually agreed upon in writing by Vineland and ARA" (Section III, paragraphs 1 and 2).

5. Infringement suits under the patent are to be brought against third parties only on the joint "written notification" of Vineland and Cleary (Section III, paragraph 4).

6. Selection of counsel for infringement suits must have the "prior written approval of" Vineland and Cleary (Section III, paragraph 4).

7. Notices of infringement or breach of license are to be sent out only with the "prior written approval" of Vineland and Cleary (Section III, paragraph 4).

8. All litigation against third parties is to be supported by a "litigation fund" contributed to equally by Vineland and Cleary (Section III, paragraph 4).

9. The pre-existing relationship between Vineland and ita attorney Noll and between Cleary and its attorney O'Brien was woven into the fabric of the trust which expressely provides that Vineland is to be "represented" by Noll as trustee and that Cleary is to be "represented" by O'Brien as trustee. (Section IV, paragraph 4). The foundation for joint action by Vineland and Cleary through their attorneys is completed by the related provision that the trustees "shall act jointly in all matters arising" under the trust (Section IV, paragraph 7).

10. The handling of the critical matters of seeking licensees under the patent and policing the patent were placed directly in the hands of Vineland and

Cleary by Section IV, paragraph 9, which expressly prohibits the trustees from performing these functions.

11. Noll and O'Brien, although called "owners" of the patent, are expressly prohibited from competing with the non-exclusive licensees in operations under the patent and dealing in DSMA (Section IV, paragraph 9).

12. The parties agree to fix and share royalties with respect to any new developments made by either of them during the life of the trust (Section III, paragraph 5(c)(iii)). They also agreed to fix and share revenue derived from developments made by the general public; i.e., "third parties not a party to this agreement" (Section III, paragraph 5(c)(iv)).

Defendant contends that the mere existence of a restrictive agreement which tends to suppress competition is sufficient proof of misuse, relying upon *Columbus Automotive Corporation* v. *Oldberg Manf. Co.*, 264 F.Supp. 779, 783 D. Col. 1967).

In addition, defendant asserts the operations under the trust have extended the patent monopoly in contravention of the purposes of the patent law in the following respects:

1. With two exceptions, licenses under the '265 patent have been granted only to the customers of Vineland or Cleary.

2. With three exceptions, licenses have been granted under the '265 patent only as an incident of the actual or contemplated purchase of unpatented DSMA from Vineland or Cleary.

3. With two exceptions, licenses under the '265 patent have been granted only on the recommendation of Vineland or Cleary.

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4. With two exceptions, the "reputability and reliability" of the licensees under the '265 patent has been determined by Vineland or by Cleary.

5. Each of the competitors, Vineland and Cleary, participates in the monies collected by the other competitor in the sale of unpatented DSMA and unpatented DSMA products. Under the trust agreement all of the royalties collected by Vineland or Cleary are transmitted to the trust. After the deduction of administrative expenses, the royalties are divided equally and distributed to Vineland and Cleary (Section III, paragraph 5(c)(i)). When Vineland sells DSMA, the royalty included in the sales price is deposited in the trust. One-half of the deposited royalty is later refunded to Vineland. The remaining half is given to Cleary. Similarly one-half of any royalty deposited by Cleary is subsequently refunded to Cleary, the remaining half being distributed to Vineland. Thus each competitor profits from any sale made by the other competitor. Since the royalty on DSMA is approximately 100 percent of the price of DSMA (DX-247), the profit realized any sale made by the other competitor is very substantial. Because of the refund arrangement, only "outsiders"; i.e., purchasers of DSMA from Vineland or Cleary, pay the full royalty rate.

6. Royalties have been collected unlawfully when the unpatented DSMA was used by customers for unpatented purposes. This was brought about in part by the presumption included in all licenses that "any arsonic acid compound sold [except for export] is intended for use in the method of Patent 2,678,265". This presumption continued to be enforced despite the facts that substantial quantities of DSMA began to be used for purposes other than crabgrass control (PF 16.7.1, PF 16.7.2), and that

as early as the third quarter of 1962 less than 20 percent of the DSMA sold by ARA and Cleary was used for the control of crabgrass (DF 405). The administrative maze through which the presumption could be rebutted made the presumption conclusive.

7. Prospective licensees who refused to accept the standard license drafted jointly by Vineland and Cleary were told by the trustees that, under the trust arrangement, variations in the licenses could be granted only with the express consent of both Vineland and Cleary (DX-49, DX-50, DX-79, DX-81, DX-82, DX-85, DX-105).

The second species of misuse alleged by Scott is that plaintiff unlawfully extended the patent monopoly by collecting royalties under the '265 patent for the use of octyl and dodecyl amonium methyl arsonates (AMA) and calcium propyl arsonate (CPA) for the control of crabgrass in turf.

Defendant asserts that in 1958 Schwerdle filed a patent application claiming the discovery of AMA as an effective selective crabgrass herbicide, and that in the course of proceedings before the patent examiner, Schwerdle asserted that AMA was markedly superior to the compounds disclosed in the '265 patent application and that the advantages of AMA could not have been predicted from a knowledge of the '265 patent disclosures. Defendant states that despite these explicit representations to the patent office which established that Vineland knew AMA was not within the scope of the '265 patent, Vineland and Cleary drafted a standard formulator license requiring all licensees to pay a royalty under the '265 patent on the use of AMA.

Further, defendant contends Vineland filed a patent application in 1960 claiming the use of CPA for pre-emergent crabgrass control, stating to the patent office that one fa-

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miliar with the '265 patent would not be led to the discovery of the effectiveness of CPA as a pre-emergent crabgrass herbicide. Nonetheless, Vineland and Cleary amended the standard formulation license prior to the granting of the CPA patent to include a royalty under the '265 patent for the use of CPA as a crabgrass controllant.

Plaintiff contends the trust was a judicially approved settlement of a bitterly contested litigation. Plaintiff asserts that although Schwerdle held legal title to the '265 patent, Cleary claimed equitable and legal title to the patent. In *W. A. Cleary Corp.* v. *Schwerdle,* Cleary alleged the invention was made while Schwerdle was employed by ARA and under a duty to assign any inventions to ARA.

Under the agreement, plaintiff contends, neither Cleary nor Vineland is the owner of the patent. Rather, ownership was given to plaintiffs in trust and Vineland and Cleary became beneficiaries of the trust income. Plaintiff asserts the trustees managed the patents and Vineland and Cleary never exercised a veto power over the granting of licenses or other operations of the trust.

Plaintiff contends the trustees had a duty to issue licenses to all users and to all reputable and responsible formulators who might request a license. The licenses themselves all contained a clause which stated the licensee was under no obligation to purchase unpatented arsonic compounds from the licensor. Further, the license provided for a uniform royalty from every licensee without exception. All of these affirmative provisions, plaintiff argues, assured free competition in the sale of DSMA.

Plaintiff asserts that at the time of the agreement establishing the trust, there were two suppliers of DSMA other than Vineland and Cleary; namely, Ansul and Guttler. The trust, instead of limiting competition among suppliers of unpatented DSMA, resulted in the entrance of at least four other suppliers of DSMA into the field. At least twelve li-

censees who purchased DSMA from either Vineland or Cleary made substantial purchases of DSMA from suppliers other than Vineland and Cleary. Moreover, plaintiff asserts defendant has admitted that a grant of a license has never been conditioned upon a licensee's agreement to purchase DSMA from either Vineland or Cleary.

Additionally, plaintiff states the trustees did not attempt to collect royalties on the use of DSMA for unpatented purposes. The licenses merely stated a presumption that use was for a patented purpose. The formulator could present records showing the true use. In fact, plaintiff did make refunds to licensees who had paid royalties for DSMA which was in fact used for unpatented purposes. For these reasons, plaintiff contends there is no evidence or inference that Vineland and Cleary combined to extend their patent monopoly in contravention of the purposes of the patent law.

In reply to the alleged second species of misuse, plaintiff asserts that AMA and CPA fall within the claims of the '265 patent and therefore the collection of royalties for the use of these compounds for crabgrass control and was not a misuse of the patent.

With respect to AMA, the plaintiff argues it has a postemergent effect on crabgrass and it is a salt of "methyl" arsonic acid, and thus AMA falls literally within the terms of the '265 patent. Plaintiff contends the statements Schwerdle made to the patent office in which he asserted AMA was markedly superior in its herbicidal effect to the compounds disclosed in the '265 patent were consistent with the patent law principle that one can obtain a patent on a specific compound, or a specific narrow type of a compound despite the fact that the compound is embraced within a large generic class of compounds earlier disclosed, provided the particular compound was not specifically named in the earlier disclosure of the embracing class and it possesses properties and effects giving it an enhanced utility

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that is not a quality common to all species of the earlier disclosed generic class.

Plaintiff concedes CPA is primarily a pre-emergent crabgrass herbicide, but argues that in the heavy dosage that is required the CPA also has a useful post-emergent effect. Thus, plaintiff argues the trustees, on advice of counsel, amended the standard formulator license to include a royalty on CPA when the post-emergent effect occurred.

B. Finding of Facts on the Misuse. By the spring of 1955, both Vineland and Cleary were manufacturers of DSMA for use in the control of crabgrass in lawns. In April of 1956, Cleary brought an action against Vineland alleging that Cleary, through its ownership of ARA, was entitled to legal and equitable title to the '265 patent. Following the filing of a written opinion by the trial court, but prior to an entry of judgment, Vineland and Cleary negotiated a settlement of the suit. A trust was established as a part of the settlement agreement. See pp. 4-6, *supra.*

Under the terms of the trust and settlement agreements, the trustees were Clyde M. Noll, Vineland's counsel in the New Jersey action and Frank C. O'Brien,[10] Cleary's counsel in the New Jersey action. Legal title to the '265 patent is vested, by assignment, in the trustees. The trustees granted non-exclusive, non-transferable licenses under the '265 patent to Vineland and Cleary. The trust agreement also provides that the "trustees shall grant . . . to all . . . reputable and responsible formulators requesting the same non-exclusive, non-transferable, uniform written licenses" under the '265 patent, but the trustees are prohibited from inducing non-licensed formulators to execute licenses. All licensees are obligated to pay a uniform royalty to the trustees, the royalty rate to be mutually agreed upon.

The trust agreement provides for a standard formulator license to be granted by the trustees. Any changes in the

[10] S. Joseph Fortunato has succeeded Mr. O'Brien as a trustee.

standard formulator license must be approved by both Vineland and ARA. Section III, paragraph 3, of the trust agreement provides, and all licenses issued under the '265 patent state, that:

> . . . it shall be presumed that any said arsonic acid compound sold . . . shall be intended for use . . . [under] the method of Letters Patent 2,678,265. This presumption may be rebutted by the giving of a certificate by the purchaser that the compound will not be so used by the purchaser or sold for such use.

The trust agreement also prevents the trustees from taking any action on an alleged infringement or breach of license without the prior written approval of Vineland and ARA. trust agreement [DX-1, §IV, ¶4]. The trustees are re- DX-8; settlement agreements, DX-1-17.]

Vineland and ARA each has the right to remove the trustee designated to represent them by giving sixty days written notice to the trustees and the other party to the trust agreement §DX-1, §IV, ¶4]. The trustees are required to act jointly in all matters arising under the trust [DX-1, §IV, ¶7]. The trust agreement states that the purpose of the trust:

> . . . is to provide a practical method of facilitating the execution of licenses under Letters Patent 2,678,265, collecting royalties thereunder and distributing such royalties as hereinbefore provided to Vineland and ARA under the direct supervision and control of Vineland and ARA. The duties of the Trustees shall be purely ministerial. [DX-1, §4, ¶9.]

When Vineland began to produce and market DSMA and DSMA products in 1954, Vineland was the only domestic sources of DSMA and DSMA products in commercial quantities for herbicidal use. In the spring of 1955, Cleary began to market a selective crabgrass control product

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"Methar" which contained DSMA. The DSMA was manufactured for Cleary by the Carlstadt Chemical Company. In 1956, Cleary continued its sale of "Methar", purchasing most of its requirements from the Ansul Company, the remainder from Carlstadt.

In the period 1957-1962, Guttler & Co., a German manufacturer of DSMA, made substantial sales of DSMA to at least one formulator licensee under the '265 patent, O. E. Linck Co. Thus, at the time Vineland and Cleary entered the settlement agreement there were four firms which were suppliers of DSMA to the trade for ultimate use as a crabgrass herbicide: Vineland,[11] Carlstadt Chemical Co., Guttler & Co., and the Ansul Company. Following the execution of the settlement, Chapman Chemical Co., Diamond-Shamrock Chemical Co., Hi-Yield Co., and Stauffer Chemical became manufacturers of DSMA for use as a crabgrass herbicide.

Each license under the '265 patent contained a statement that the:

> Licensee is under no obligation, either as a condition to the granting of this license or the maintenance of it in force, to purchase unpatented arsonic acid compounds or any other material from licensor or any designee of licensor, it being expressly understood and agreed that licensee may purchase unpatented arsonic acid compounds and any other unpatented material from any source it desires. [DX-10.]

The licensees therefore were informed in the license agreement that they were under no obligation to purchase unpatented DSMA or any other unpatented compound from Vineland or Cleary. Moreover, the trustees caused the '265 patent to be placed on the register of patents available for licensing and the public was informed of the

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[11] Vineland Chemical Company.

availability of licenses through the publishing of a notice in the Official Gazette of the United States Patent Office. In addition to the statement in the license of the availability of a supply of unpatented DSMA, the "Oil, Paint & Drug Reporter" in the period from June, 1957 through August, 1962 identified DSMA as a material being imported into the United States and the consignee of said DSMA. The number of suppliers of DSMA, the license itself, the publication referred to above, and the voluminous literature in the trade referring to the discovery, development and effectiveness of DSMA products as crabgrass killers all suggest that prospective licensees; i.e., the general public, were advised of the availability of licenses under the '265 patent and that licensees had available sources of DSMA other than Vineland and Cleary (which was supplied by Ansul and Carlstadt).

At least two suppliers of DSMA, Guttler & Co. and Ansul sold substantial quantitites of DSMA to licensees other than Cleary or Vineland. From 1957 through 1962, Guttler &Co. sold a total of over 125,000 pounds of DSMA to the O. E. Linck Co., Inc.[12] Linck also bought DSMA from Ansul. In the period from 1957 to 1967, Ansul sold 885,000 pounds of DSMA to licensees other than Linck and Cleary.

With two exceptions, Ansul and Mohawk Laboratories, Inc. (hereinafter Mohawk), the formulator licenses came about as the result of requests either by the beneficiaries or by applicants who were initially customers of one or both of the beneficiaries or by persons whom one of the beneficiaries hoped would become a customer. One license, to Mohawk, was granted on or about January 24, 1964 as a result of a request coming directly to the trustees from Mohawk at the suggestion of Ansul.

The trustees attempted to grant user licenses whenever a potential user requested such a license but either the trust-

[12] In 1962 the sales were to the O. E. Linck Co., Inc.'s successor in interest, O. E. Linck Division of Walco American Corp.

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ees received no response to their sending out of a user license agreement or it was found that the ostensible applicant could not be located at the address furnished by him. No offer of a user license was in fact accepted.

With the exceptions of the formulators Union Carbide and Burpee, whenever one beneficiary proposed a formulator as a prospective licensee, the trustees did not reveal the identity of that formulator to the other beneficiary until the trustees had completed the execution of the license.

Union Carbide and Burpee each wanted a special form of license agreement. In each case the form of the license was approved by the beneficiaries and the license was granted by the trustees, and in each case the license contained both the "favored nations" clause and the provision expressly stating that the licensee was free to purchase arsonic acid compounds from any source.

The grant of a license to Ansul, being part of the settlement of the trustees' patent infringement against Ansul, was known to, and approved by, the beneficiaries. With the exceptions of Union Carbide, Burpee and Ansul, the identity of a prospective licensee was not known to both beneficiaries prior to the time when the license to that prospective licensee was fully executed.

The evidence of the actual grant of licenses and the source of DSMA for licensee is that twelve licensees have purchased DSMA from manufacturers other than Vineland and Cleary, as well as from Vineland and Cleary. The uncontroverted testimony of the trustee, Noll, is that licensees were free to purchase DSMA from any source.

With two exceptions (Ansul and Mohawk), all fifty-nine licensees under the '265 patent have been customers of either Vineland or Cleary, or both. With three exceptions (Ansul, Lilly and Mowhawk), licenses have been granted under the '265 patent only as an incident of the actual or contemplated purchase of unpatented DSMA from Vine-

land or Cleary. With two exceptions (Ansul and Mowhawk) the reputability and reliability of the licensees under the '265 patent [as required by the trust agreement as a condition precedent to the grant of a formulator license] have been determined by Vineland and/or Cleary.

Thus, of fifty-nine licensees under the patent, fifty-seven were customers of Vineland and/or Cleary and forty-two were customers of Vineland and/or Cleary to the exclusion of all other sources.

As stated above, the standard formulator agreement required under the operation of the trust creates a presumption that any unpatented arsonic compound sold by the formulator is intended for use in the method claimed by the '265 patent. However, products containing DSMA or AMA sold under the labels of Vineland and Cleary for uses other than for the control of crabgrass carry labels that have no reference to crabgrass and no reference to the patent in suit. Neither Vineland nor Cleary paid any royalties on sales of DSMA for uses other than the selective control of crabgrass.

Doggett-Pfeil Company and its eventual owner Penn Chemical Co. have follllwed the same labeling procedure as Vineland, Cleary and ARA. A DSMA-containing product that was sold for use as a selective crabgrass herbicide carried a label that referred only to crabgrass and to the license of such use under the patent in suit; the other DSMA-containing products which were sold to selectively control Dallisgrass carried a label having no reference to the patent in suit or to the control of crabgrass.

Both Vineland Sales and Cleary have sold DSMA to formulators who utilized the DSMA formulation for products that were not to be used in the selective control of crabgrass.

At least upon request, the trustees have informed licensees and prospective licensees that no royalties were pay-

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able under the '265 patent when the DSMA or other arsonic acid material was used to control weeds other than crabgrass. Vineland has also informed licensees that no royalty was payable under the '265 patent unless the DSMA or other arsonic acid material was used to control crabgrass.

It is the uncontroverted testimony of the truestee Noll that the trustees have never collected royalties under the '265 patent where the DSMA or other arsonic acid material, to the trustees' knowledge, was used to control weeds other than crabgrass. The defendant did not present any evidence of specific instances where licensees were *knowingly* charged a royalty when arsonic compounds were used for purposes other than crabgrass control.[13]

Each license issued by the trustees under the '265 patent granted the licensee the option either (1) of paying the royalty when the licensee purchased the DSMA or other arsonic acid material, in which case if the material was not used for the selective control of crabgrass the licensee could obtain a royalty refund, or (2) the licensee could wait until it actually sold the DSMA or other arsonic acid material for use in the selective control of crabgrass and pay the royalty at the time of the sale for such use.

The trustee Noll testified that the purpose in giving each licensee that choice of the manner in which to make royalty payments was to provide further assurance that the royalty was charged only when the DSMA or other arsonic acid material was used for the selective control of crabgrass.

O. E. Linck and Scott sold DSMA-containing products having a label that predominantly identified crabgrass as

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[13] Defendant does assert that royalties were collected for unpatented DSMA when it was used for unpatented purposes; that the presumption of use in the licenses was in practice "well nigh conclusive"; and that the presumption continued after use of DSMA as a crabgrass controllant had become secondary to other herbicidal uses.

the target weed, but which in addition stated that the product could be used against other weeds such as Dallisgrass. Disagreement as to the amount of sales by Linck for the non-infringing Dallisgrass use led to a suit by Walco (Linck's successor) against the trustees. The suit was settled and Walco was given a royalty credit to the extent that Walco or Linck was able to establish that Linck's product had not been used to control crabgrass.

Other than the claim against, and audit of, the O. E. Linck Company, the trustees have not brought any suit against any licensee for payment of royalties under the '265 patent, nor have the trustees audited the records of any licensee. Including the Linck matter, there were five occasions when a licensed formulator asked the trustees for a royalty credit or refund on the ground that the material had not in fact been used in the selective control of crabgrass. In each case the basis for the claim for refund or credit was investigated. In no case did the trustees refund the money but in each case, with the exception of Linck, the trustees authorized Vineland to take as a credit against future royalties, the amount it had reimbursed to the formulator licensee.

When the DSMA, or other arsenic acid material, was returned to Vineland, unused, or was used for the control of weeds other than crabgrass, Vineland reimbursed by cash or check the licensee who had returned the material or had used the material to control weeds other than crabgrass. In turn, Vineland, as royalty-collecting agent for the trustees, deducted from its next royalty statement to the trustees the amount that Vineland had refunded to the licensee. The trustees, before they authorized a refund of royalty, either requested the licensee seeking the royalty refund to submit a label or an invoice showing that the DSMA or other arsonic acid material had been used to control weeds other than crabgrass, or asked an officer of the licensee to make a statement in writing to the trustees that the DSMA or

other arsonic acid material had not been used for the selective control of crabgrass.

Beginning in the later part of 1961, Cleary began to sell DSMA for the selective control of Dalligrass. In 1962 there was considerable experimental work done with the use of DSMA for the control of Johnson grass in cotton fields. Vineland first sold DSMA for use in the control of Johnson grass in cotton fields in the summer of 1962, and its sales of DSMA for that use became considerably more substantial in 1963. In 1961 the beneficiaries put to the trustees the questions of whether the '265 patent covered the use of DSMA to selectively destroy Dalligrass and the use of DSMA to selectively destroy weeds in cotton fields. By May, 1962, the trustees, on advice of patent counsel, had decided that sales of DSMA for use in the control of Dallisgrass could be made free of any royalties under the '265 patent.

Thereafter, the beneficiaries and other *licensees who inquired* were informed that where the main purpose was to control weeds other than crabgrass, such as the use of DSMA to control Dallisgrass in Bermuda grass or to control Johnson grass in cotton fields, a royalty was not required by the license agreement under the '265 patent, even through some crabgrass may have been present and selectively controlled.

The form of formulator license that was prepared in 1959 when the trust agreement was entered into contains a representation by the licensee, in the form of a presumption, that any of the arsonic acid compounds described in the '265 patent that are sold in the United States, except where the product is exported to foreign countries other than Canada or Mexico, are intended for use in the United States in the practice of the method of the '265 patent.

The standard formulator license states that the presumption can be rebutted by the purchaser of those arsonic acid compounds by the giving of a certificate stating that

the compound will not be used by the purchaser or sold by him for use in the method of the '265 patent. [E.g., PX-181, at T 4591.]

When ARA or Vineland sold any of those arsonic acid compounds to purchasers who intended to use the materials for purposes other than the selective control of crabgrass, the purchaser gave ARA or Vineland a letter representing that the material was not to be used for the selective control of crabgrass, and ARA or Vineland, in turn, certified to the trustees, in the form of a simple letter or report, that certain quantities of arsonic acid materials had been sold by ARA or Vineland for uses other than for the selective control by crabgrass. Such certifications were invariably accepted by the trustees.

In 1959, when the trust agreement was entered into and the form of formulator license agreement was established, there was no known commercial use of DSMA and AMA other than for the selective control of crabgrass. The first sale for a non-crabgrass control use was in 1960.

By 1962-1963, at least one-half of the DSMA sales were for purposes other than the selective control of crabgrass. In the third quarter of 1962, less than twenty percent of the DSMA sold by Vineland and ARA was used for the control of crabgrass.

From the fall of 1963 to the time of trial, no licensee had reported his sales of arsonic acid compounds unless those compounds had been sold for use in the selective control of crabtrass.

AMA, as marketed by Vineland and ARA (Cleary) for use in the control of crabgrass, comprises among its active ingredients a mixture of substituted ammonium salts of methyl arsonic acid. The ammonium salts used in the above mixture are octyl ammonium methyl arsonate and dodecyl ammonium methyl arsonate.

In 1958, seven years after the '265 patent application, Vineland filed U.S. Patent Application 726,066 (DX-73) claiming the discovery that octyl and dodecyl ammonium methyl arsonates (AMA) were effective in the selective control of crabgrass.

Vineland made the following express representation to the patent office (DX-73, p. 55):

> In applicant's last paper it was pointed out that the Arthur Schwerdle who is the present applicant is the same Arthur Schwerdle to whom the Schwerdle Patent [2,678,265] cited by the Examiner therein was issued. The application and applicant's last paper discuss in detail the marked superiority of the presently provided salts to the organic salts disclosed in the Schwerdle Patent, none of which are of the type presently disclosed and claimed. The only ammonium salts referred to in the Schwerdle Patent (Col. 3, lines 54-55) are the ethanolamine and morpholine salts.
>
> Submitted herewith is an affidavit with an accompanying photograph showing dramatically the distinction between the activity of the presently provided novel alkyl ammonium salts and the activity of an organic salt as suggested by the Schwerdle Patent.

It was also specifically represented to the patent office that the major advantages of the new compounds "in no way could have been predicted from a knowledge of the Schwerdle Patent disclosures" [DX-73, p. 56].

The patent office granted a patent (No. 3,056,821, DX-72) on the compounds to Vineland on October 2, 1962. Vineland withheld this patent from the trust, although in a separate transaction Vineland gave Cleary a royalty free license [DX-3].

On April 3, 1959, Vineland and Cleary amended the standard formulator license to require all licensees to pay

a royalty under the '265 patent on sales of these compounds as follows:

> For the license herein granted, licensee shall pay to licensor a royalty or license fee at the rate of: (A) thirty-five cents ($0.35) a pound of disodium methyl arsonate (calculated as the hexahydrate) and (B) thirty-five cents ($0.35) a pound of *octyl and/or dodecyl ammonium methyl arsonates,* [AMA] present in the packaged compositions sold by licensee for the control of crabgrass in accordance with the method of said letters patent [2,678,265] ... [DX-8]. [Emphases added.]

In subsequent years Vineland and Cleary shared royalties through the trust under the '265 patent for the herbicidal use of these compounds.

AMA is a salt of "methyl" arsonic acid which is within the literal terms of Claim 2 of the '265 patent. AMA is used for the selective post-emergent control of crabgrass.

Calcium propyl arsonate (CPA) is a salt of an arsonic acid having the formula of Claim 1 of the '265 patent, where "R" is propyl, and therefore is within the terms of Claim 5 of the '265 patent when used for the selective post-emergent control of crabgrass.

On August 9, 1960, Vineland filed patent application 48,368 (DX-75) claiming the use of certain chemicals, principally CPA, for use as a pre-emergent crabgrass controllant. [DX-75, at 2.] The patent examiner rejected the original application for the following reasons:

> Claims 1 to 17 are rejected as unpatentable over the Schwerdle patent ['265] which discloses that metal arsonates of the type claimed are known herbicides for the control of crabgrass. To merely apply a herbicide prior to emergent [sic] of a grass known to be controlled with said herbicide would appear a matter of choice within the skill of the art and would not amount to invention. [DX-75, p. 29.]

Schwerdle then filed a response to the patent officer's findings, making the following argument:

> Of course *some* herbicides are effective in both pre and lost emergent applications [example omitted].
>
> But whether applicant's invention is "obvious" depends on whether herbicides are *normally* effective both pre- and post-emergently, and particularly whether Schwerdle's herbicides normally exhibit selective action in pre- as well as post-emergent application.
>
> The affidavit shows they do not.
>
> ...
>
> These data are illustrative of the fact that herbicides are *not* normally effective both as pre- and post-emergents.
>
> ...
>
> This shows that normally the herbicides taught by the Schwerdle patent, which are good selective post-emergent crabgrass herbicides, are not effective selective *pre*-emergents.
>
> But the calcium salt is. The difference between this and the other materials is beyond cavil.
>
> ...
>
> Thus the affidavit is submitted to overcome the rejection. It shows that it is not obvious that a herbicide which is an effective post-emergent selective crabgrass control agent will give pre-emergent control.
>
> ...
>
> Thus one familiar with the practice of the invention of the Schwerdle Patent would not even be led in the direction of the present invention. [DX-75, 33-35.]

On April 17, 1962, the patent office allowed the application which became Patent 3,030,199. [DX-74.]

Vineland proposed to market CPA as a pre-emergent control without payment of royalty under the '265 patent

but after the threat of litigation by Cleary it was agreed that CPA was subject to royalites under the trust. Just before the CPA patent 3,030,199 issued to Vineland, the trustees, acting pursuant to express direction of Vineland and Cleary, amended the Standard Formulator License to charge a royalty proposed by Schwerdle and approved by Cleary on the use of CPA under the '265 patent. The amendment to the Standard Formulator License added the following royalty provision. [DX-76.]

> An amount per pound of calcium propyl arsonate [CPA] equal to eight cents ($0.08) x 1/R where R is the rate of application in pounds per thousand square feet required to provide pre-emergent crabgrass control, and . . .

Every license granted under the '265 patent after 1962 includes an obligation to pay royalty set jointly by Vineland and Cleary for the use of AMA and CPA.

CPA has a post-emergent effect when applied to turf for pre-emergent control of crabgrass. On or about October 11, 1961, the W. A. Cleary Corp. was informed by Professor Clayton M. Switzer, Department of Botany, Ontario Agricultural College, that tests conducted by him had shown (1) that calcium propyl arsonate gave good pre-emergent crabgrass control at an application rate of 60 pounds per acre, but did not give satisfactory pre-emergent control at lower rates and (2) that calcium propyl arsonate, when applied post-emergence to the crabgrass at a rate of 60 pounds per acre, gave good post-emergent control.

CPA was sold primarily as a pre-emergent crabgrass control, but when used for that purpose, the CPA did exert a post-emergent control. When calcium propyl arsonate is applied to turf at the rate of 60 pounds per acre, which is the effective rate of 100 percent pre-emergent crabgrass control with no turf injury to the desirable grasses, the CPA gives 100 percent post-emergent crabgrass control with no injury to the desirable turf.

Users of pre-emergent crabgrass herbicides, particularly the lay public, have a very difficult time anticipating putting down, on a lawn, a chemical to prevent a crabgrass problem that is not yet visible to the eye. Many people wait to apply crabgrass herbicides until the first crabgrass can be seen.

Under ideal conditions all the crabgrass seeds in a lawn may germinate within a two or three day period. Under other than ideal conditions, the crabgrass seeds in a lawn germinate in successive "crops" of crabgrass which come up over an extended period of time. In dry, cool weather, such as occurred in 1969 in the northeastern United States, that time period may be eight or nine weeks. The pre-emergent application of CPA at the rate of 60 pounds per acre to a lawn in which the first crop of crabgrass has germinated will prevent germination of the remaining crabgrass seeds, and at the same time will kill, post-emergently, the crabgrass already present in the lawn.

The bags in which CPA was sold by certain organizations, such as O. E. Linck & Co., expressly informed the user that the material was effective both for pre-emergent crabgrass control and for post-emergent crabgrass control. The instructions for the use of Vineland's product, "Pre Emergent Crab-E-Rad", state: "Crab-E-Rad can be used any time during the spring because it kills germinating seeds and seedlings; destroys germinating seed in soil before it becomes a plant. Crab-E-Rad prevents the emergence of crabgrass and also selectively kills young crabgrass."

Vineland's direction for the use of its "new Pre Emergent Crab-E-Rad", accepted by the United States Department of Agriculture on November 21, 1960, stated that that product, containing calcium propyl arsonate, "prevents the emergency of crabgrass and also selectively kills young crabgrass." The directions above, also state, "Young crabgrass can still be effectively controlled in late

spring by the application of Crab-E-Rad. Crab-E-Rad at this time will kill most or all of the emerged crabgrass and prevent further germination."

C. Conclusions of Law on the Issue of Misuse. Patent misuse is a species of the equitable doctrine of unclean hands which renders the misused patent unenforceable whether the patent is valid or invalid. Misuse of a patent may take many forms. In general, exploitation of the limited patent monopoly in a manner inconsistent with the public policy of the patent laws constitutes patent misuse. See, *Morton Salt Co.* v. *G. S. Suppiger Co.*, 314 U.S. 488 (1942).

The first species of misuse alleged by defendant is that Vineland and Cleary combined as competitors to control the exploitation of the patent in suit. A patent monopoly is granted for the purpose of promoting, "the progress of science and useful arts by securing for limited times to authors and inventors exclusive right to their respective writings and discoveries." *United States Constitution*, Art. 1, Sec. 8. The public interest is paramount in the patent system. *Mercoid Corporation* v. *Mid Continent Investment Co.*, 320 U.S. 661 (1944).

The crux of defendant's argument on the first species of misuse is that there is an *unlawful concert of action between competitors* through the trust and ancillary agreements which is in contravention of public policy favoring competition in unpatented commerce. Defendant's theory fails because its underpinning—that Vineland and Cleary acted as competitors—is not buttressed by fact. All the evidence indicates that Cleary, through its ownership of ARA, asserted against Vineland in good faith an arguable claim of ownership of the '265 patent in *W. A. Cleary Corporation* v. *Schwerdle*, Civil No. 1036-55 (D. N.J. 1959). The district court reached no decision as to the ownership of the patent. The parties to the suit reached a compromise which in essence vested joint ownership of the '265 patent in Vineland and Cleary.

There is no evidence of any kind that the series of agreements establishing the trust was a meeting of the minds between competitors. Rather, the agreements were solely the resolution of a dispute between parties asserting legal and equitable title to a patent.

The patent law does not prohibit joint ownership of a patent, nor does it prevent the owner of a patent from producing unpatented materials for sale to licensees under a patent. Rather, it is patent misuse to condition the grant of a license on the purchase of unpatented compounds. *Morton Salt Co.* v. *G. S. Suppiger Co.*, 314 U.S. 488 (1942); *Mercoid Corp.* v. *Mid-Continent Investment Co.*, 320 U.S. 661 (1944). It is similarly misuse of a patent for competitors to agree among themselves to restrict licensing. *United States* v. *Besser Manufacturing Company*, 96 F. Supp. 304 (E.D. Mich. 1951), *aff'd.* 343 U.S. 444 (1952); *Mason City Tent and Awning Company* v. *Clapper*, 144 F. Supp. 754 (W.D. Mo. 1956); *McCullough Tool Company* v. *Well Surveys, Inc.*, 343 F.2d 381 (10th Cir. 1965), *cert den.* 383 U.S. 933 (1966).

The settlement agreement entered into between Vineland and Cleary does not operate to extend the patent monopoly. The trust agreement and standard formulator license contain affirmative provisions which assure free competition. It is the duty of the trustees to grant a license to any user of the patented process and to any reputable and responsible formulator. Each standard formulator license contained a clause stating that the licensee was under no obligation to purchase unpatented materials from the licensor. Additionally, a uniform royalty was designated with the provision that if any licensee was granted better terms, all licensees could avail themselves of such terms.

Defendant argues that certain provisions in the trust agreement (lettered 1 through 12, pages 9-11) constitute misuse of the patent without regard to the actual operation of the trust. These provisions might well support an infer-

ence, or even finding, of misuse if the agreement to regulate licensing under the patent was between mere licensees or the patentee and a stranger to the patent. However, the instant case must be distinguished from the cases relied upon by defendant in which one or more strangers to the patent combine as competitors to exploit it in a manner inconsistent with public policy. Both Vineland and Cleary have a claim to the patent as inventors. The provisions of the trust agreement relied upon by the defendant to establish misuse are in reality merely terms imposed by the parties upon themselves to comply with the patent law and to provide a mutually agreeable method of exploiting the patent monopoly granted by law.

The use of trustees to oversee the granting of licenses and the payment of royalties and to act in a sense as bargaining representatives of Vineland and Cleary is understandable in light of the course of events between the parties since 1949.

The control granted jointly to Vineland and Cleary over the royalty rate, terms of the standard formulator agreement, and judicial actions is consonant with joint ownership of the patent by parties each having legal rights arising from the act of discovery resulting in the patent. With respect to control over licensing, it must be remembered that the licenses were uniform. None of the provisions singled out by defendant create a presumption of misuse by joint owners of a patent.

Defendant also argues that the operations under the trust show conclusively the nature of the allegedly restrictive agreements. [See letters 1 through 7, pages 11-12.] In fact, by far the majority of licensees purchased their requirements of DSMA from Vineland or Cleary, or both Vineland and Cleary. Nonetheless, these facts do not lead to the conclusion that a grant of a license was conditioned upon the purchase of unpatented DSMA from either Vineland or Cleary.

First, there is no evidence such a condition was ever imposed.

Second, a substantial quantity of DSMA was purchased from other suppliers and each licensee had a contractual right to purchase DSMA from whomever he pleased. The Court cannot conjecture as to the reason the great majority of licensees purchased from Vineland and Cleary.

Defendant's objection that each "competitor" profited from the sales of the other "competitor" is without merit. Vineland and Cleary profit not from the sale of unpatented DSMA but from the payment of a royalty due each under the settlement agreements as joint owners of the patent. The fact that the royalty equals nearly one hundred percent of the sale price of DSMA does not alter the fact that Vineland and Cleary share in the royalty, not in the profits of competitors.

As discussed above in the findings of fact, there is no specific evidence of payment of royalties by formulator for the use of DSMA other than for the control of crabgrass. Each licensee was informed by the license that royalties were due only for patented uses. Placing the burden upon the licensee, who alone had knowledge of the probable ultimate use, to prove unpatented use was not unreasonable under the circumstances. Proof itself should have been relatively simple if the licensee kept product production and inventory records.

The second species of misuse alleged by defendant is that plaintiff unlawfully extended the patent monopoly by collecting royalties under the '265 patent for the use of AMA and CPA for the control of crabgrass in turf.

Plaintiff concedes that if the patent in suit had been used in a scheme to collect royalties on uses that are not within the patent, the patent would be unenforceable for periods in which there was such use of it.

Both AMA, a salt of a methyl arsonic acid, and CPA, a salt of propyl arsonic acid, are within the literal terms of the claims of the '265 patent.

The AMA patent [No. 3,056,821, granted October 2, 1962] was apparently granted on the theory that although the compounds were within the literal terms of the '265 patent claims and the use was the same, the compounds were not disclosed in the specifications of the '265 patent application and their activity was sufficiently novel to permit the issuance of the patent.

Between 1959 and 1962 the standard formulator license provided for a royalty for the use of AMA as a post-emergent crabgrass controllant and royalties were collected under the patent for such use. Defendant argues that the charge of a royalty for AMA is blatant fraud. The Court holds the evidence of a fraudulent scheme is insufficient. The owners of the '265 patent had at least an arguable claim that the use of AMA as a post-emergent crabgrass controllant was within the '265 patent.

The fact that the patent examiner originally rejected the AMA patent application, in part because the AMA claim was "unpatentable over" the '265 disclosures, supports the argument that AMA is within the '265 patent. In these circumstances defendant's theory that the plaintiffs extended the '265 patent monopoly to cover uses not within the patent, thereby misusing the '265 patent in such a manner that plaintiffs should not be permitted to enforce it, is untenable.

The collection of royalties under the '265 patent for the use of CPA as a crabgrass controllant presents a more difficult problem. CPA has both pre and post emergent herbicidal activity for the control of crabgrass. Vineland received a patent on the use of CPA as a *pre*-emergent crabgrass controllant, but the trustees charged a royalty for the use of CPA as a *post*-emergent crabgrass controllant. The evidence is that CPA does have a post-emergent

use when applied for the pre-emergent control of crabgrass. There is no question CPA was marketed primarily for pre-emergent control of crabgrass, although purchasers were advised of its post-emergent use. Although the decision to charge a royalty on the essentially secondary rather than primary use of CPA appears to be an indirect manner of exploiting an invention, there is no substantial evidence that the use of CPA for which royalties were charged was not within the '265 patent.

Under the circumstances, the Court holds the trustee's act of charging royalties for the use of CPA under the '265 patent does not constitute patent misuse.

II. Invalidity

A. Issues on the Questions of Invalidity. Defendant contends that the '265 patent, and particularly claim 2 thereof, is invalid because:

(a) The subject matter was obvious to a person of ordinary skill in the art at the time Schwerdle allegedly made his invention.

(b) It overclaims Schwerdle's invention in that it covers the use of inoperable compounds.

(c) It overclaims Schwerdle's invention in that the method covered therein is partially inoperative.

(d) It does not comply with the requirements of Section 112, Title 35 of the U. S. Code in that it does not particularly point out and distinctly claim Schwerdle's alleged invention.

(e) The specification does not set forth the manner of using the invention in such full, clear, concise and exact terms as to enable one skilled in the relevant art to use the invention.

(f) The patentee, Arthur Schwerdle, omitted facts from his application which make the application taken as a whole misleading.

Plaintiff asserts the patent is valid and was infringed by defendant. The positions of each party will be discussed in the Court's conclusions of law on the issue of invalidity.

B. Findings of Fact on the Validity of the '265 Patent. Crabgrass is an annual plant or grass which does not survive the winter frost. It reproduces by the prolific reproduction of seeds which lie in the soil over the winter and germinate the following spring.

Kentucky Bluegrass and Bermuda grass are perennial grasses which survive more than two winters continuously. In 1951, Kentucky Bluegrass was the predominant, desirable turf grass in the northern, cool, humid portions of the United States, and Bermuda grass was the predominant, desirable turf grass in the southern, warm, humid regions of the United States.

Crabgrass is regarded as a weed, or undesirable grass or plant, when growing in bluegrass or Bermuda grass turf. Since 1927, Scott has been endeavoring to discover suitable ways to control crabgrass in desirable turf.

In 1948 there was no completely satisfactory method for the selective control of crabgrass in turf except manual removal of the individual crabgrass plants. The methods of chemical control of crabgrass that were known in 1948 were unsatisfactory either because the chemicals were not selective; i.e., they killed the desirable grasses along with the crabgrass, or because the chemicals were poisonous to humans or to pets; e.g., potassium cyanide and inorganic arsenicals such as sodium arsenite and lead arsenate.

DSMA is one-tenth as poisonous to humans and pets as the inorganic arsenicals such as sodium arsenite or lead arsenate.

In 1950, Scott first marketed its product Scutl, which was a dry, granular herbicide for the control of crabgrass. The active ingredient listed on the Scutl label was phenyl mercuric acetate (PMA). The PMA was adhered to a vermicu-

lite carrier by a polyhydric alcohol. After the introduction to the market of Clout, which contains DSMA, by Scott in 1956, Scutl was superseded as a crabgrass killer by Clout. Scott continued to sell Scutl, but after the introduction of Halts, recommended that it be used as a fungicide.

After DSMA became known to people in the trade and experimental data had been compiled, a number of articles appeared in the turf literature extolling the merits of DSMA as a crabgrass herbicide. [See, e.g., PX-184-A through PX-184-H.] DSMA was an immediate commercial success.

The Better Lawn and Turf Institute, Marysville, Ohio, working in cooperation with Scott personnel, conducted an evaluation of customer interest in lawn weeds in 1955 and again in 1958. In 1955, the Lawn Institute received more inquiries concerning crabgrass than any other lawn weed. By 1958 consumer complaints had trended away from crabgrass. The chief cause of that shift of homeowner complaints, subsequent to the advent of the selective herbicidal use of arsonates, was that the use of those herbicides, widely marketed in 1958, had made crabgrass less of a problem.

Prior to July 5, 1951, the date of the '265 patent application, the state of the art was as follows:

1. It was described in literature available to the public that "chemicals used in controlling weeds may be applied dry or in solution depending on the type of chemical, the size and type of the area to be treated, and various other factors. The dry method, in nearly all cases, consists of mixing the chemical with a carrier such as sand, soil or fertilizer."

2. Crabgrass herbicide materials had been applied to turf by the use of spray apparatus, where the herbicide material was in the form of a liquid solution, and by the use of mechanical spreader machines, where the herbicide was in the form of a dry granular solid.

3. It was known to agronomists that expanded vermiculite, a dry, granular material, could be used in a herbicidal formulation.

4. Expanded vermiculite had been used in the herbicidal composition Scutl.

5. It was described in literature available to the public that vermiculite was a suitable, inert, dry carrier for the crabgrass herbicide PMA, and that the use of vermiculite for that purpose in Scutl resulted in the dilution of the toxic PMA to a safe level.

6. The December, 1950 issue of Agricultural Chemicals contained a Glossary of Modern Herbicide Terminology in which the term "Diluent" was defined as "Any liquid or solid material serving to dilute or carry an active ingredient."

7. It was known to agronomists that a polyhydric alcohol material, serving the function of adhering a phenyl mercuric acetate herbicide to expanded vermiculite, had been used in herbicidal formulations.

8. The utility of a wetting agent in a selective herbicidal formulation was described in literature available to the public.

9. It was described in literature available to the public that the addition of a wetting agent to a selective herbicidal formulation would facilitate penetration of the herbicide into the weed to be controlled.

10. Literature was available to the public that described the use of surface active agents with herbicides in aqueous solutions or dusts to facilitate application of the herbicide and to improve its retention by the plant to which the herbicide was applied.

11. It was described in literature available to the public that when a wetting agent is incorporated into a herbicidal formulation, the wetting agent appears to step up the effect of the herbicide, thereby rendering it possible to use smaller concentrations of the herbicide.

12. Literature available to the public described the use of a wetting agent in a selective herbicidal formulation.

13. It was described in literature available to the public that alkyl aryl sulfonates could be used as a wetting agent in a herbicidal formulation.

14. Promotional literature of the Atlantic Refining Company was available to the public that recommended the use of Atlantic's Ultrawet products Ultrawet 30E and Ultrawet 30DS (which are alkyl aryl sulfonates) as surface active agents in spray solutions of herbicides such as the sodium salt of 2,4-D. The Ultrawet products were stated to improve the spreading property of the herbicide on plants having a waxy surface on their leaves.

15. It was known that crabgrass is a plant that has a waxy coating on the surface of its leaves.

16. Literature was available to the public that stated that alkyl aryl sulfonates had been used extensively in arsenical herbicides.

17. The alkyl aryl sulfonate type of wetting agent that in 1956 was incorporated as an ingredient of Scott's commercial product Clout was described in a book, "Surface Active Agents, Their Chemistry and Technology" that was available to the public in 1949. That book described alkyl aryl sulfonates as having been used extensively in formulating arsenical herbicides.

18. It was known to agronomists who were concerned with the application of crabgrass herbicides to turf that in the event a single application of such a herbicide had not completely killed the crabgrass, it would be necessary to make more than one application to obtain complete control of the crabgrass.

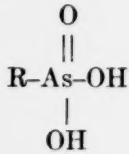
19. It was described in literature available to the public that if one application of an arsenical (sodium arsenite or arsenic acid), used in controlling weeds, gave satisfactory control of the weed, but caused too great an injury to the turf grass, several repeated treatments at a lighter rate

would give satisfactory weed control with less injury to the turf grass.

Throughout the interval from 1936 to at least 1955, an active screening program in search of herbicides having selective activity against crabgrass was being carried on at Rhode Island University, on behalf of the university under the direction of defendant's expert DeFrance who was then Research Professor of Agronomy at the university. In 1948 DeFrance was testing various organic materials at Rhode Island University for possible use in the control of crabgrass. At that time, DSMA was a commercially available commodity, being used as a drug or tonic for human consumption, but DSMA was not included by DeFrance among the materials that he screened on behalf of the university for herbicidal activity against crabgrass.

In the period from 1945-1946, when DeFrance first became aware of the herbicidal activity of organic mercurials against crabgrass, to the period 1953-1954, DeFrance never found an organic arsenical compound for the selective control of crabgrass that he thought worthy of being published.

Subsequent to his termination of employment with ARA at the end of the summmer of 1949, Schwerdle tested DSMA and several other compounds for selective herbicidal activity against crabgrass. Prior to making the '265 patent application, Arthur Schwerdle had not tested or had tested on his behalf as selective controls for crabgrass any compound having the formula:



where R is methyl, ethyl, propyl, butyl, or allyl other than disodium methyl arsonate.

Although DSMA was known to chemists prior to 1951, it was not used or known as a crabgrass herbicide until July 5, 1951. However, in 1939, DSMA was tested as a herbicide. The publication, *Journal of the Council For Scientific and Industrial Research*, Vol. 15, No. 2, May, 1942, referred to herein as the "skeleton weed" article, reports the results of toxicity trials in Australia in 1938 and in 1939 to determine the effect of various chemicals as a toxicant against skeleton weed. In 1938, among other compounds tested, the article describes the testing of seven arsenic compounds as herbicides for skeleton weed.

Skeleton weed (Chondrilla juncea) is not crabgrass (Dijitaria Sanguinalis), nor botanically related to crabgrass; the former being a very deep rooted, perennial plant and a dicotyledon, found primarily in wheatfields in Australia, while crabgrass is an annual, monocotyledon plant, regarded as a weed when present in lawns containing desirable turf grasses.

None of the chemicals described in DX-107 was tested for selective herbicidal activity. Skeleton weed was the only plant to which the materials were applied, and there is no comparison of the toxic effect of any of those materials upon a different species of plant. No selective action was or could have been found. In addition, certain of the chemicals tested such as kerosene and tetraethyl lead were themselves known to be non-selective herbicides; i.e., they would exert a killing effect upon any plant they were put on; others were applied in combination with sulfuric acid as a penetrating agent, further indicating that there was no attempt at selectivity.

Of the seven arsenicals tested in the 1938 toxicity trials, two were inorganic arsenicals and five were organic arsenicals, including sodium methyl arsonate. The toxic effect of each of the two inorganic arsenicals, arsenic pentoxide and arsenic trioxide, against skeleton weed was "significantly greater" than the toxicity of any of the organic arsenicals.

Of the eleven materials tested in 1938, sodium methyl arsonate had the next to least toxicity against skeleton weed. The least toxic material was o-tolyl arsonic acid, also an organic arsenical material. Defendant's expert, DeFrance, admitted that the toxicity of sodium methyl arsonate was "not significantly different" from the toxicity of o-tolyl arsonic acid.

The following year, in the 1939 toxicity trials, the same investigators omitted all organic arsenicals from the compounds tested by them for toxicity against skeleton weed.

An article in the 1947 Journal of the American Society of Agronomy describes the testing of lead arsenate and other inorganic arsenic compounds to determine, first, whether it is the anion or the cation (the arsenate or the lead) that is responsible for the control of crabgrass, and second, whether the control by lead arsenate is by kill of the crabgrass seedlings or by action on the embryo of the seed. With respect to the former inquiry, the conclusion was that the anion was the active agent.

With respect to the latter inquiry, it is concluded, "The arsenic kills not the tiny seedlings, but the embryo of the seed." [DX-110, p. 520.] Application of lead arsenate in the early spring to ground containing crabgrass seeds did not prevent germination—"a good stand of crabgrass developed." [Id., p. 514.] The following year practically no crabgrass plants appeared on the treated area, leading to the assumption "that in order for lead arsenate to control crabgrass it must lie in contact with the seed for a considerable time during which it gradually breaks down and the poison penetrates the seed coat and eventually kills the embryo." [Id., p. 514.]

An earlier 1938 article in the same Journal of the American Society of Agronomy by the same authors states the results of testing arsenic pentoxide, among other inorganic arsenic compounds, for the selective control of crabgrass. The authors concluded that at the "rates which were required to give satisfactory control it killed all the grass."

[Id., p. 822.] "The use of arsenic pentoxide proved impractical for even in moderate quantities it killed the desirable grasses." [Id., p. 826.]

The 1939 "Turf Culture" article describes the selective control of crabgrass by use of sodium arsenite, correctly identified by defendant's expert, DeFrance, as a deadly poison. The authors of that article concluded that "up to the present time sodium arsenite appears to be the most successful and economical" chemical for crabgrass control, but further experimental work was needed to determine whether it "will be the chemical most suited to our needs or whether some other chemical will be used. . . ." [Id., p. 62.]

United States Patents Nos. 2,537,608 and 2,552,288 describe the use of phenyl mercuric acetate (PMA) as a herbicide for the selective control of crabgrass. The article by DeFrance, "Crabgrass Control in Turf with Chemicals", describes the use of PMA for that purpose; the article also reports good results were obtained with two non-mercurial compounds, but the article gives no disclosure of the chemical identity of them.

PMA is an organic *mercury* compound, having no chemical relation to the organic *arsenic* compounds of the claims of the Schwerdle patent in suit. There is no disclosure in DX-125, DX-126 or DX-290, or in any other prior art patent or publication, of a relationship in herbicidal activity between PMA and DSMA (or any other compound of the claims of the Schwerdle patent) for the selective control of crabgrass.

The article "Crabgrass Chemical Control" reviews the history of chemical treatments for the selective control of crabgrass during the period 1930-48, including the use, beginning in the 1930's of inorganic arsenicals such as lead, calcium and magnesium arsenate and sodium arsenite. The state of the art in 1948 was accurately given:

> Despite years of chemical research to find satisfactory means to control crabgrass, this pest (*Digitaria* sp.)

> continues to be one of the most prominent and tenacious of the annual weeds. [DX-124, p. 25.]

Lead arsenate was found to be "toxic to all grasses" if applied post-emergently; i.e., if applied other than during October-December, just prior to winter, or during February-April, very early spring. Calcium arsenate and magnesium arsenate were less effective against crabgrass and more toxic to the desirable grass. The article concluded:

> To sum it up, it appears that two characteristics limit the use of the arsenicals as selective weed killers, their toxic properties and their burning effect on turf grasses. [Id., p. 26, column 2.]

By 1948, just prior to Schwerdle's work, mercurial formulations had supplanted inorganic arsenicals as the most effective selective crabgrass herbicides, being relatively safer and more effective than the inorganic arsenicals. It was recognized that "although the mercurial formulations are the most effective selective crabgrass killers commercially available today, they still leave much to be desired." [Id., p. 27, column 1.] The mercurial compound PMA was recognized to be deficient in three respects: concentrates of it were strongly poisonous, it was not effective against mature crabgrass and it damaged desirable lawn grasses.

In May, 1956, Scott registered its Clout product for the first time with the United States Department of Agriculture under the provisions of the Federal Insecticide, Fungicide and Rodenticide Act. DSMA was the only component of Clout that was identified by Scott as an "active ingredient" in the ingredient statement required by that act. In the ingredient statements appearing on all subsequently registered bags and containers of Clout that were sold by Scott, DSMA was the only material identified as an "active ingredient."

Harold Doellinger, the Scott official who prepared the registration statements understood the term "active ingre-

dient" to mean any "ingredient which will . . . destroy . . . weeds or other pests."

In response to an official request of September 23, 1966, by the United States Department of Agriculture to identify each inert ingredient in Clout, Scott specified vermiculite, hexylene glycol, Victoria Blue dye and Ultrawet K Dense as the materials in the package of Clout that were not a herbicide.

When the Clout product manufactured by or for Scott in the period from the date of first commercial production thereof to the present date is applied to an area containing crabgrass in accordance with Scott's directions accompanying that product, the vermiculite component of that Clout product has no herbicidal activity in and of itself against the crabgrass. The function of the vermiculite ingredient in Clout is to act as a carrier for, and an inert diluent of, the DSMA.

When the Clout product manufactured by or for Scott in the period from the date of first commercial production thereof to the present date is applied to an area containing crabgrass in accordance with Scott's directions accompanying that product, the hexylene glycol component of that Clout product has no herbicidal activity against the crabgrass. A function of the hexylene glycol component of Clout is as a sticking agent for the DSMA which causes the DSMA to adhere to the particles of vermiculite.

When the Clout product manufactured by or for Scott in the period from the date of first commercial production thereof to about September 16, 1968, was applied to an area containing crabgrass in accordance with Scott's directions accompanying that product, the Victoria Blue dye component of that Clout product had no herbicidal activity against the crabgrass.

The Clout product manufactured by or for Scott in the period from the date of first commercial production of that

product to about July 30, 1968, contained "Ultrawet K Dense", an alkylarly sulfonate, which was a surface active agent that Scott purchased, under the trade name "Ultrawet", from the Atlantic Refining Company.

Scott's own testing of the ingredients in Clout by its Field Research Division found that only DSMA, and formulations containing DSMA, exhibited selective herbicidal activity against crabgrass. Formulations which contained the Calsoft wetting agent and hexylene glycol ingredients of Clout, but which omitted the DSMA ingredient, did not control crabgrass.

Tests conducted at Apopka, Florida by the Manager of Scott's Southern Development Research Program established that dry, granular formulations containing the Calsoft wetting agent component of Clout or the hexylene glycol component of Clout, or both components, but which did not contain DSMA, were not herbicidally active against crabgrass.

Based on his observations of the results of tests both of Clout, and of the DSMA, hexylene glycol and Calsoft wetting agent ingredients of Clout, that were conducted by Scott at Marysville, Ohio; Washington, D.C.; Los Angeles, California and Apopka, Florida; defendant's herbicide expert, Colby, reached the general conclusion that the wetting agent and hexylene glycol ingredients of Clout, when used along, were herbicidally inactive against crabgrass.

The expert testimony does not establish the process by which DSMA in Clout act as a herbicide. Clout is preferably applied to an area containing crabgrass that is wet or moist. The granules of Clout stick to the wet surfaces of the crabgrass blades and the moisture is utilized to progressively release DSMA from the individual Clout granules, permitting the DSMA to enter into the crabgrass plant. It was Renner's understanding that once inside of the crabgrass plant, the DSMA interferes with the physiological growth processes of the plant to such an extent that

the plant is killed. It is clear, however, that the DSMA in Clout is herbicidally active with respect to crabgrass.

In most instances, tests conducted by Frank S. Smith (Smith) for Scott of the application of Clout to an area containing crabgrass resulted in at least 95 percent of the crabgrass plants being killed.

Renner testified that it has been Scott's general experience that any discoloration of desirable lawn grasses that may have been caused by the application of Clout to a lawn in accordance with Scott's directions was a temporary discoloration, with the grasses recovering after watering.

Scott's instruction sheet that accompanies a bag of Clout informs the user of Clout that two applications of Clout a week apart are usually sufficient to achieve complete control of the crabgrass.

When the user of Clout adjusts his spreader machine to the size opening recommended by Scott in its instructions that accompany a bag of Clout, and the user then makes an application of Clout with that machine to an area containing crabgrass, the DSMA in Clout is applied to that area at a rate of 3.4 pounds per acre. In Scott's test reports, that rate of application of DSMA is referred to as the "1x" rate.

In tests conducted by Raymond F. Huey, the Project Leader of herbicide development for Scott at Marysville, Ohio, it was found that: one application of Clout to crabgrass growing in Kentucky bluegrass turf at the "1x" normal rate recommended by Scott for the application of Clout resulted in 63 percent control of the crabgrass with no injury to the Kentucky bluegrass; two applications of Clout at that normal rate to crabgrass growing in Kentucky bluegrass turf resulted in 73 percent control of the crabgrass with no injury to the Kentucky bluegrass; and three applications of Clout at that normal rate to crabgrass growing in Kentucky bluegrass turf resulted in 87 percent control of the crabgrass with an acceptable 3 percent injury to the

Kentucky bluegrass. Those tests were conducted at the seed head stage of development of the crabgrass, the stage of development at which crabgrass is the most difficult to control by the use of a chemical herbicide.

In those tests it was also observed that: the one application of Clout at that normal rate did not kill any of the bentgrass desirable turf; the two applications of Clout at that normal rate resulted in a temporary 3 percent injury of the bentgrass which, within a week, had completely recovered; and the three applications of Clout at that normal rate did not result in any permanent injury to the bentgrass.

It was further found in those tests that: the one application of Clout at that normal rate to crabgrass growing in fescue, as the desirable turf grass, did not kill any of the fescue grass; the two applications of Clout at that normal rate to crabgrass growing in fescue grass did not kill any of the fescue grass; and the three applications of Clout at that normal rate to crabgrass growing in fescue grass did not kill any of the fescue grass.

In those tests it was also found that: the one application of Clout at that normal rate to crabgrass growing in Windsor bluegrass, as the desirable turf grass, did not kill any of the Windsor bluegrass; the two applications of Clout at that normal rate to crabgrass growing in Windsor bluegrass did not kill any of the Windsor bluegrass; and the three applications of Clout at that normal rate to crabgrass growing in Windsor bluegrass did not kill any of the Windsor bluegrass. Mr. Huey testified that if those applications of Clout had been made to crabgrass at an earlier stage of development, a greater percent of the crabgrass would have been controlled.

When two applications of Clout are applied at the "1x" normal rate, in accordance with Scott's directions accompanying the package of commercial Clout product to crabgrass growing in Bermuda grass as the desirable turf grass,

there is no injury to the Bermuda grass. A third application causes only a very little amount of injury to the Bermuda grass.

Clout is recommended by Scott for the selective control of crabgrass growing in Zoysia grass or in Bermuda grass, both of which are southern turf grasses.

Dichondra is utilized as a desirable turf for lawn purposes in California. It has been Scott's general experience that Clout selectively destroys crabgrass in Dichondra lawns when applied in accordance with Scott's directions.

In tests conducted by the director of research for Scott on the west coast, it was found that when two applications of Clout at the "1x" standard rate were applied, in accordance with Scott's recommendations, to crabgrass growing in Dichondra turf, the Clout gave no kill at all of the desirable Dichondra. A third application produced only a minor, temporary injury to the Dichondra that was regarded by Scott as acceptable to a home owner using Clout for the selective control of crabgrass in a Dichondra lawn.

It has been the experience of plaintiff's expert, Duich, that the application of Clout to crabgrass growing in desirable turf grass causes the crabgrass to be killed but does not cause permanent injury of any kind to the desirable turf grass.

In a test conducted by Scott in 1960, it was found that Merion variety of Kentucky bluegrass, Highland bentgrass, Colonial bentgrass, Chewings Fescue and a Fescue mix were not injured when DSMA was applied to those grasses at the rate of 3.38 pounds per acre.

It is clear from the results of testing over a period of years that DSMA is a selective crabgrass herbicide.

United States Patent 2,678,265 contains a specific description of the efficacy of DSMA as a selective crabgrass herbicide at column 4, lines 20-58.

In 1959, defendant's expert DeFrance, then Research Professor of Agronomy at Rhode Island University, tested a dry granular formulation of DSMA impregnated on vermiculite as a selective crabgrass herbicide. The formulation may have been commercial Clout, although there is no evidence that it was. A single application of that material at the rate of 3.6 pounds per acre of DSMA gave 91 percent control of the crabgrass with no permanent injury to the desirable turf grass. Two applications of that composition at the rate of 3.6 pounds per acre of DSMA resulted in 100 percent control of the crabgrass with no permanent injury to the desirable turf grass. At that time, DeFrance also tested DSMA in the form of a spray solution and concluded that there were comparable results from both DSMA materials, although one was applied in solution and the other was applied in granular form.

In a refined turf area, where Bermuda grass is the desirable turf grass, Bahia grass is regarded as a weed and can be selectively controlled by the application of DSMA.

The primary turf grass in the northern portion of Florida is Bermuda grass. In the southern portion of Florida, St. Augustine is a major lawn grass where the lawn is shaded.

St. Augustine Grass, Bahia Grass, Zoysia Grass and Centipede Grass are today desirable grasses in some areas of the southeastern United States. In one series of tests made by defendant, the results indicated Clout should not be used on Centipede or St. Augustine Grass because the DSMA was too toxic for those grasses. However, in another test, a lower dosage of DSMA proved to be an effective selective crabgrass controllant in St. Augustine Grass.

Scott does not recommend the use of Clout as a selective crabgrass herbicide against crabgrass growing in St. Augustine Grass or Centipede Grass.

During the period from 1956 to 1969, Scott conducted a herbicide screening program in which it tested thousands

of chemicals for selective herbicidal activity against crabgrass. In that testing program, DSMA and commercial Clout were, for the most part, the standards that were used as the basis for comparison of selective post-emergent herbicidal activity. None of the chemicals that Scott tested for selective post-emergent herbicidal activity against crabgrass has supplanted DSMA as the active ingredient in Clout.

An agronomist, having the '256 patent before him and seeing that a number of chemicals were claimed to have selective herbicidal activity against crabgrass, could determine the efficacy of any such chemical as a selective crabgrass herbicide by testing, following procedures that were being utilized by agronomists since at least as early as 1952.

Subsequent to the filing of the complaint in this action on February 14, 1962, Scott conducted herbicide tests of compounds falling within the scope of Claim 2 of the '265 patent to determine whether or not those compounds were effective as a selective crabgrass herbicide. A preliminary screening was conducted by Scott, and those chemicals that did exhibit selective herbicidal activity against crabgrass were not recommended for further testing.

When "methyl" is substituted for "R" in the general structural formula of Claim 1 of patent '265 as specified in Claim 2 of that patent, the resultant structural formula defines methyl arsonic acid.

Defendant's expert, Dr. Sweet, testified that, theoretically, there could be "thousands and maybe even hundreds of thousands" of compounds that could be called salts of methyl arsonic acid.

Defendant offered evidence that ten compounds within Claim 2 of the '265 patent [copper methyl arsonate, phenyly mercury methyl arsonate, bis (Di-n-do-decylamine) methyl arsonate, calcium methyl arsonate, diphenyl mer-

cury methyl arsonate, 2-aminoethanal methyl arsonate, lead(ous) (plumbous) methane arsonate, dimercury methane arsonate, calcium methane arsonate, and zinc methane arsonate] were not effective as selective, post-emergent crabgrass herbicides.

The test report designated DX-364 demonstrates that copper methyl arsonate and phenyl mercury methyl arsonate are inoperable compounds because they were not selective.

DX-364 also finds that bis (Di-n-dodecylamine) salt of methyl arsonic acid is an inoperable compound. However, tests conducted by Scott prior to the filing of the complaint herein found that a single application of bis (Di-n-dodecylamine) salt of methyl arsonic acid [which was called "bis (Di-n-dodecylamine) methyl arsonate" in DX-364] resulted in 98 percent control of crabgrass with no injury to the desirable Kentucky bluegrass turf when the material was applied at the rate of 164.47 grams per thousand square feet.

In the test conducted by Scott subsequent to the filing of the complaint in this action and relied upon by Scott to prove the purported non-selectivity of bis (Di-n-dodecylamine) methyl arsonate, that material was applied twice at the rate of 235 grams per thousand square feet per application and once at the rate of 470 grams per thousand square feet.

Mr. Renner, who did not supervise or directly conduct the tests, also testified that test results (DX-503; DX-494) indicated diphenyl mercury methyl arsonate and 2-aminoethanol methyl arsonate were inoperable compounds because of their very low herbicidal activity.

Di-phenyl mercury methyl arsonate was found by Scott to give 100 percent control of crabgrass, but at the application rates employed in Scott's test, was not sufficiently selective, in Renner's judgment, to be an operable selective crabgrass control.

The fifth compound, calcium methyl arsonate, which test results show to be inoperable as a crabgrass herbicide, was tested in a greenhouse.

Defendant's expert, Dr. Colby, testified that in his greenhouse tests he was not able to simulate the heavy dew conditions that would be experienced in the field on a home owner's lawn, and that he would not use his greenhouse experiments as the basis for making recommendations for the control of crabgrass.

In tests conducted by and for Vineland, it was found that a single post-emergent application of calcium methyl arsonate resulted in 93 percent control of crabgrass with 2 percent injury to the bluegrass turf.

Scott further contends that DX-242 demonstrates that lead(ous) methane arsonate, dimercury methane arsonate, calcium methane arsonate and zinc methane arsonate have zero activity on crabgrass, and that they are therefore inoperable compounds.

However, DX-242 was admitted into evidence for the limited purpose of showing that certain information was conveyed from Mr. Elman of Ansul to Mr. Renner of Scott. DX-242 was not admitted for the truth of the matters stated. Therefore, Scott cannot rely upon it as probative evidence of the herbicidal activity of lead(ous) methane arsonate, dimercury methane arsonate, calcium methane arsonate, and zinc methane arsonate on crabgrass.

In 1959, three years before the filing of the complaint in this action, Scott conducted tests in which it was found that each of the following compounds gave better than 97 percent control of crabgrass, with no permanent discoloration of bluegrass, when applied to an area containing crabgrass and bluegrass: Decyl amine salt of methyl arsonic acid, N-hexylamine salt of methyl arsonic acid, 2-amino ethanol salt of methyl arsonic acid, 1-amino octane salt of methyl arsonic acid, N-dodecylamine salt of methyl arsonic acid, barium salt of methyl arsonic acid.

The only compound of patent '265 that has ever been utilized by Scott in its Clout product has been DSMA. DSMA is operable as a selective, post-emergent crabgrass herbicide.

Subsequent to leaving ARA in August, 1949, and prior to July 5, 1951, Schwerdle tested sodium methyl arsonate as a selective crabgrass herbicide, at the following concentrations and, on the indicated dates, recorded his observations of the effectiveness of the treatment:

Date	Concentration	Observations
September 10, 1949	1:100	V-12 exerted a fine preferential action against crabgrass in one application. Conclusion: more work with a wider range of concentrations is required.
August 4, 1950	1:1000	Excellent preferential action against crabgrass. Crabgrass becomes etiolated-yellowish white, then brown and dies. Does not affect other good Kentucky bluegrass. Good but not strong enough.
June 5, 1951	1:250	Good crabgrass control. Crabgrass growing in at border new crabgrass coming in. Good grass not injured.

Subsequent to July 5, 1951, but prior to October 1, 1952, Schwerdle tested the following compounds for selective herbicidal activity against crabgrass: sodium ethyl arson-

ate; sodium propyl arsonate; sodium allyl arsonate. DSMA was the only compound tested by Schwerdle prior to July 5, 1951 having the formula of Claim 2 of the '265 patent.

C. Conclusions of Law. Each of defendant's claims of invalidity will be considered separately.

(a) Defendant asserts the subject matter of the '265 patent was obvious at the time Schwerdle made his asserted invention.

The term "obvious" as it is defined in the patent law means obviousness "to a person having ordinary skill in the art." Section 103 of the Patent Act of 1952 provides:

> A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

In *Graham* v. *John Deere Co.*, 383 U.S. 1 (1966) the United States Supreme Court outlined the framework for a determination of obviousness:

> Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or non-obviousness, these inquiries may have relevancy. *Id.* 383 U.S. at 17-18.

Both plaintiff and defendant accept this statement of the rule; however, they differ as to how the evidence should be viewed.

Defendant relies very heavily upon the testimony of Dr. DeFrance, a research agronomist for many years at the University of Rhode Island Agricultural Experiment Station and now an employee of Scott. He testified that because inorganic mercurials caused injury by accumulation of a metallic mercury, he and other experts in the field looked to organic mercurials as a substitute.

DeFrance further testified that had he known DSMA was tested as a herbicide in Australia in 1939, he would have attempted to obtain DSMA for further testing. If anything, the results of the 1939 tests would have led one skilled in the art to screen DSMA out of a testing program. The herbicidal activity reported was low compared with the non-organic arsenicals tested. In addition, there is no showing of even a remote similarity between skeleton weed, the undesirable plant in the Australian study, and crabgrass.

Defendant also claims that the discovery of PMA, an organic mercurial, as a crabgrass herbicide, prior to the patenting of DSMA as an active crabgrass herbicide, highlighted the desirability of evaluating organic arsenicals as crabgrass controllants.

There is little evidence before the Court as to the level of skill in the art. Weed control is primarily an empirical art of trial and error. Schwerdle took steps in the right direction using this method. All the evidence leads to the conclusion that the discovery of DSMA as a selective crabgrass herbicide was a substantial advance in the art which was not predicated upon the prior art.

On the contrary, the invention filled a long felt need, unsolved by those experienced in the art, and it was an immediate commercial success. The Court holds that the subject

matter of the '265 invention was not obvious in the light of the prior art.

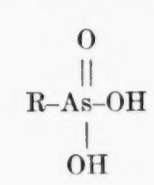
(b) Defendant argues that Claim 2 of the '265 patent covers the use of many compounds which are not operable in the selective control of crabgrass.

In *Kalle & Co.* v. *Mutazo Co.*, 109 F.2d 321 (6th Cir. 1940) the Court stated:

> Where within a general classification disclosed by the claims are compounds which do not answer the description of the specifications, even though there be a general equality common to them all, yet if there be no common quality in respect to their effectiveness in achieving the inventive concept, claims for their exclusive use cannot be sustained. *Id.* at 325.

The rule of *Kalle* has been repeatedly reaffirmed by the Sixth Circuit Court of Appeals. *American Chemical Paint Co.* v. *Firestone Steel Products Co.*, 117 F.2d 927 (6th Cir. 1941); *Libbey-Owens-Ford Glass Co.* v. *Celanese Corporation of America*, 135 F.2d 138 (6th Cir. 1943); *Petrol Valve Co.* v. *Robertshaw Fulton Controls Co.*, 210 F.2d 146 (6th Cir. 1954); *Pemco Products, Inc.* v. *General Mills, Inc.*, 261 F.2d 302 (6th Cir. 1958).

Claim 2 of the '265 patent covers, in very broad language, a method of selectively controlling the growth of crabgrass in desirable turf by applying to an area containing crabgrass a mixture containing an arsonic acid having the formula:



where R is methyl or a salt thereof; that is, the claim covers a method of selectively controlling the growth of

crabgrass by applying to the crabgrass methyl arsonic acid or one of its salts; i.e., a methyl or methane arsonate.

Dr. Sweet, Professor of Chemistry at Ohio State University, testified that the structural formula of Claim 2 covers "an enormously large number of compounds"; thousands, possibly even hundreds of thousands of compounds. Arthur Schwerdle, prior to filing his patent application, tested only one such compound, DSMA.

Defendant argues that ten of many compounds it tested were not effective selective post-emergent crabgrass controllants. The evidence relating to the operability of these compounds as selective, post-emergent crabgrass controllants is set out in the findings of fact above. The Court will now discuss this evidence with reference to the applicable law.

The only evidence with respect to copper methyl arsonate and phenyl mercury methyl arsonate is that although they control the growth of crabgrass they result in too much turf injury to be safe. The tests were conducted by defendant after litigation had commenced. Plaintiff argues that the inconsistent results of defendant's tests of *other* compounds creates a doubt as to the results of the copper methyl arsonate and phenyl mercury methyl arsonate tests. In addition, plaintiff cites the following language in *Loom Co.* v. *Higgins,* 105 U.S. 580, 586 (1881):

> When the question is whether a thing can be done or not, it is always easy to find persons ready to show how not to do it.

Plaintiff properly points out that test results are affected by two subjective factors: first, the testor's choice of dosage, and second, the testors evaluation of the percentage kill of crabgrass and percentage injury to desirable grasses.

The Court recognizes the pitfalls pointed out by defendant and notes the desirability of *inter partes* and independ-

ent testing; however, the Court must evaluate the evidence as presented and draw conclusions therefrom. When a patentee claims the exclusive use of a large group of related compounds he has the burden of proving that "all of them [have] some general quality which [makes] them effective" for purposes of the patent. *Pemco Products Inc.* v. *General Mills, Inc., supra* at 304; *but see, American Chemical Paint Co.* v. *Firestone Steel Products Co., supra* at 929. Herein plaintiff has laid claim to a group of compounds containing thousands or even hundreds of thousands of members, but the inventor had tested only one such compound at the time of his patent application. At the time of the trial plaintiff had tested only one of the compounds defendant asserts fail to operate in the manner claimed by the '265 patent. Plaintiff offered no proof or theory of the effectiveness of all the thousands of compounds covered by the '265 patent.

At trial there was evidence that several other compounds have been proven effective. Therefore, at the present time there is some scientific evidence as to the effectiveness of far less than one percent of the compounds claimed. This fact alone might well support a finding that plaintiff's patent claim was over broad.

The Court, however, holds that there is ample evidence that copper methyl arsonate and phenyl mercury methyl arsonate are not selective crabgrass herbicides, although the compounds are within Claim 2 of the '265 patent. In addition, the test of bis-di-n-dodecylamine methyl arsonate, calcium methyl arsonate, diphenyly mercury methly arsonal and 2-aminoethanol methyl arsonate, although contradictory, cast doubt on at least the commercial effectiveness of these compounds as selective crabgrass herbicides.[14]

WHEREUPON, the Court holds that Claim 2 of the United States Patent No. 2,678,265 is invalid.

(c) Defendant contends the '265 patent is invalid because the method covered in Claim 2 is partially inoperative.

The evidence is that Clout is not selective when used on St. Augustine Grass and Centipede Grass. However, there is no evidence in the record that a dosage of DSMA other than that in commercial Clout would not be an effective selective crabgrass herbicide in St. Augustine Grass and Centipede Grass. The validity or invalidity of the patent cannot turn on the effectiveness of commercial Clout. Moreover, all the evidence indicates that DSMA is an effective, selective crabgrass herbicide in all the major types of desirable grasses grown in the United States at the time the patent was granted. Considering all the evidence, the Court holds defendant has not sustained his burden of proof with respect to this defense.

(d) Defendant argues the '265 patent is invalid because it does not comply with the requirement of §1112 that a patent particularly point out and claim an invention.

Title 35, United States Code, Section 112, provides in relevant part:

> The specifications shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

This portion of §112 was construed in *General Electric Co. v. Wabash Appliance Corp.*, 304 U.S. 364 (1938):

> Patents, whether basic or for improvements must comply accurately and precisely with the statutory requirements as to claims of invention or discovery. The limits of a patent must be known for the protection of the patentee, the encouragement of the inventive gen-

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[14] As stated in the findings of fact, see p. 57, there is no competent evidence in the record of the inoperability of lead(ous) methane arsonate, dimercury methane arsonate, calcium methane arsonate and zinc methane arsenate.

[15] This issue will be discussed even though the Court has held the '265 patent invalid, and conclusions of law will be made as though the '265 patent had been held valid.

ius of others and the assurance that the subject matter of the patent will be dedicated ultimately to the public. The statute seeks to guard against unreasonable advantages to the patentee and disadvantages to others arising from uncertainty as to their rights. The inventor must "inform the public during the life of a patent of the limits of the monopoly asserted, so that it may be known which features may be safely used or manufactured without a license and which may not." The claims "measure the invention." Id. at p. 369.

Defendant contends Claim 2 of the '265 patent fails to establish the limits of the invention with the requisite specificity. In particular, defendant asserts the claim is ambiguous when it states selective control of crabgrass is accomplished by an application of arsonic compound:

> . . . in a concentration and amount sufficient to destroy crabgrass but insufficient to destroy material quantities of . . . useful grasses and plants.

Defendant contends the phrase "concentration and amount sufficient . . . but insufficient" is an invitation to experimentation, not a definite statement of the bounds of an invention. Further, the expressions "material quantities" and "useful grasses and plants" are indefinite.

Plaintiff protests this issue was pleaded, but was not designated in the pretrial order as an issue for trial. Defendant raises the issue under the general question of validity stated in Part VIII-A of the pretrial order.

The matter is at issue, and this objection is without merit.

On the merits of the defense, plaintiff argues the state of the art prior to the invention was such that persons in the field of crabgrass control knew how to prepare herbicidal formulations, knew how to apply them, and knew how by simple and routine tests to find the right amount and con-

centration. The '265 patent, plaintiff continues, gave the teaching that methyl arsonic acid, or a salt thereof, was a superior herbicide for the selective control of crabgrass.

Plaintiff contends this disclosure was enough to give anyone in the field the whole idea about the use of a new compound for the selective control of crabgrass. The dosage varies with conditions of use and cannot be expressed well numerically or by formula.

The evidence supports plaintiff's position. Relatively simple experimentation was required to determine the proper concentration and amount of DSMA. The important disclosure of the patent was that DSMA, and presumably all other methyl arsonic acids and their salts, were selective post-emergent crabgrass controllants. The state of the art was such that the proper concentration and amount could be determined by experimentation. The limits of the monopoly, with respect to this objection, were clearly defined by the expertise of the art. Indeed, conditions vary so greatly that the optimum concentration and amount for any particular turf is almost certain to vary from an arbitrarily determined norm. The Court holds defendant's objection is without merit.

(e) Defendant urges Claim 2 of the '265 patent is invlaid because the specification does not meet the requirements of the following portion of Title 35, United States Code, Section 112:

> A written description of the invention, and the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, to make use of the same ...

In the instant case, defendant asserts, the patent is invalid because basic experimentation is required before the method sought to be covered by the '265 patent can be

practiced. See, *Whitman* v. *Andrus,* 194 F.2d 270-275 (6th Cir. 1952).

Defendant argues that temperature and soil moisture content are two factors critical to any method of application which are not even mentioned in the patent claim.

Other factors not revealed by the patent claim are the number of applications of the compound which should be made, the concentration and amounts at which the compounds should be applied if plural applications are made, and the time interval between plural applications. Each of these factors is important in devising a method of applying arsonic acids or a salt thereof to grasses for the selective control of crabgrass.

Mr. Renner, a Scott Vice-President, testified it took "broad experimentation" to determine an appropriate concentration for DSMA.

Plaintiff responds first by noting it does not consider this ground for invalidity to be within the pretrial order.

On the merits, plaintiff argues, temperature, moisture, number of applications and concentration and amount were facts which the patent could leave to the existing skill of the art. The art knew temperature and moisture affect the herbicidal action; knew more than one application might be needed; and knew how to find the proper concentration and amount for given conditions.

The Court holds that plaintiff's position is clearly supported by the evidence. The facts and questions presented are very similar to those considered immediately above. Mr. Renner's testimony exaggerates the normal research incident to marketing a product.

The variables set out in defendant's argument cannot be reduced to a simple formula. Undoubtedly each of the companies which has marketed a DSMA product has arrived at a slightly different solution. Conditions vary from turf to

turf; it is unrealistic to expect a uniform solution. The patent specifications and claim test the limits of generality, but the Court holds the patent is valid in that it conforms with 35 U.S.C.A. §112.

(f) Defendant alleges the '265 patent is invalid because Schwerdle omitted facts from the patent application which make it misleading.

The '265 patent states that one of the preferred formulas for crabgrass control includes an inert material such as water and sodium arsenate, sodium dimethyl arsonate and sodium methyl arsonate. Defendant asserts that when the application for the '265 patent was filed Arthur Schwerdle knew that this combination was not suitable for the specified purpose, because more than six weeks before the application for the '265 patent was filed Arthur Schwerdle had personally determined that sodium dimethyl arsonate in the concentration specified in the formula set forth as a preferred formula in his patent application was not a suitable selective control for crabgrass. This observation was never revealed to the patent office.

Defendant asserts Schwerdle failed to perform his duty to disclose all information relevant to the pursuit of a patent of his invention, his omissions, rendering the patent invalid. See, *Chas. Pfizer & Company, Inc.* v. *F.T.C.*, 401 F.2d 574 (1968); *Beckman Instruments, Inc.* v. *Chemtronics, Inc.*, 428 F.2d 555, 165 U.S.P.Q. 355 (5th Cir. 1970); *Monsanto Co.* v. *Rohm & Haas Co.*, 312 F. Supp 778, 164 U.S.P.Q. 556 (E.D. Pa. 1970)

Plaintiff argues this issue is not within the pretrial order and was not even pleaded as a defense The issue is before the Court, and plaintiff's objection is without merit.

On the merits of the issue, plaintiff contends the alleged omissions were not material. The tests Schwerdle performed prior to filing the patent application do not support defendant's argument that Schwerdle knew a combination

of sodium arsenate, sodium dimenthy arsonate and sodium methyl arsonate was not a suitable selective crabgrass controllant. Schwerdle did test the combination around six weeks before he filed the patent application. The only indicia of the test results is a cryptic notation, "Hot. Leave out V-7." Defendant offered no evidence to clarify the meaning of this notation or the results of the test.

More importantly, neither the tripartite combination, nor the sodium dimethyl arsonate (V-7) is within Claim 2 or any other claim of the invention. Therefore, even if a misstatement or omission were presumed, it would not be material to the patented invention.

Further, even if it were assumed the tripartite combination was not a selective crabgrass controllant, any person reading the patent could readily determine that fact by following the formula set out in the application and performing a suitable test. If, on the other hand, such person were interested in producing or using a selective crabgrass controllant within one of the claims, he could use the formula set out in the claims.

For the above reasons, the Court holds defendant's omission of facts make the application misleading is withobjection to the validity of the patent on the ground that out merit.

III. Infringement

A. Issues on the Question of Infringement. Plaintiffs charge Scott has infringed Claim 2 of the '265 patent (1) by using Clout in the selective control of crabgrass in accordance with the invention stated in Claim 2 and (2) by actively inducing others; i.e., the defendant's customers, to use Clout in the selective control of crabgrass in accordance with the invention stated in Claim 2.

Defendant argues its use of Clout has been confined to use for experimental purposes and therefore is inconse-

quential. Plaintiff asserts that even though Scott's use has been limited to testing, the tests enabled it to "optimize" the Clout formulation and make asserted improvements, thus assuring successful use by Scott's customers. Scott's test directly affected its sales volume, profit and reputation.

Defendant contends it did not actively induce infringement of Claim 2 of Patent 2,678,265.

First, defendant argues, although Claim 2 purports to cover all methods of applying monomethyl arsonic acid (or a salt thereof) and an inert diluent to lawns infested with crabgrass, Schwedle tested and disclosed to the public only the method of applying a mixture of the compounds with water by spraying. Defendant argues Schwerdle's failure to disclose to the public the dry granular method of applying the compound was not a result of oversight, but simply resulted from the fact he did not know that a dry granular method of application was a possibility.

Defendant also argues the patent claims monomethyl arsonic acids affect post-emergent crabgrass control by a single application. Defendant finally contends the '265 patent indicated, and thus could claim, only a method of applying the herbicide with a concentration and amount in a spray form.

Defendant concludes that Clout was developed independently by Scott's research program requiring five to six man years of effort. Defendant argues Clout differs from the teaching of Claim 2 of the '265 patent in the following material respects:

1. Clout is a dry granular product applied by a mechanical spreader, not a liquid applied by a spray.
2. Clout requires two or more applications, not one alone.
3. When Clout is applied in accordance with the directions on the bag, the concentration and amount of

> DSMA applied to the turf is insufficient to control crabgrass. Clout does not contain any compound disclosed by the '265 patent which is applied to crabgrass in a concentration and amount sufficient to control crabgrass.

In summary, defendant argues the teaching of the '265 patent is the selective control of crabgrass by applying a chemical in a spray form in a concentration and amount sufficient to effect the selective control of crabgrass in desirable grasses by a single application of a monomethyl arsonic acid, and neither defendant nor its customers use this teaching or employs this method.

In response, plaintiff points out that Clout has contained, at all relevant times, the following ingredients: vermiculite, hexylene glycol and either calsoft F-90 or Ultrawet K Dense. Plaintiff contends disodium methyl arsonate (DSMA) is the sole herbicidally active ingredient of Clout, and that the teaching of the '265 patent is that a mixture of a methyl arsonate, such as DSMA with an inert dilutent may be used in the selective control of crabgrass by post-emergent application to the infested area. Essentially, plaintiff maintains neither the particular diluent nor the precise method of application is determinative of the use of infringement.

Plaintiff asserts Clout, which has as its herbicidally active ingredient DSMA, is used by post-emergent application to a crabgrass infested area, thus infringing the '265 patent which discloses the effectiveness of DSMA as an effective, selective, post-emergent crabgrass controllant.

B. Findings of Fact on the Issue of Infringement. Findings of fact made on the issues of misuse and validity which are relevant to the issue of infringement are incorporated herein. In addition, the Court makes the following findings of fact on the issue of infringement.

Prior to its adoption of Clout, Scott was aware that the '265 patent had been issued to the Vineland Chemical Com-

pany. At least as early as April 27, 1956, and prior to its marketing of Clout, Scott was aware that the patent purported to cover the use of DSMA in the selective control of crabgrass.

Scott entered into a licensing agreement with Vineland Chemical Company under the '265 patent or or about April 27, 1956.

After March 29, 1957, Scott purchased its requirements of DSMA from Ansul and others without the payment of royalties to the trustees of the '265 patent or anyone else.

The Scott product sold under the trademark Clout is the only product manufactured and sold by Scott containing DSMA. PX-28-A through PX-38-G and PX-99-A through PX-99-0 are bags identical to bags of Clout that were sold in the years 1959 through 1969.

A nominal amount of Scott's production of Clout is sold by Scott directly to purchasers who apply that Clout in accordance with the instructions on the Clout package to lawns containing both crabgrass and desirable grasses, as well as to lawns containing weeds other than crabgrass. A substantial part of Scott's production of Clout is sold, as a packaged product in final retail form, to purchasers who resell to the ultimate users.

Scott's marketing distribution of Clout is heavily concentrated in those sections of the United States where crabgrass is a major lawn problem.

When filled bags of Clout are placed flat on the floor of a store, one bag lying upon another bag, a prospective purchaser who looks at the sides and the ends of those bags sees no reference to any weed other than crabgrass.

Scott has disseminated advertising and other promotional materials to newspapers and to retail vendors of Clout that recommend the use of Clout against crabgrass and contain no reference to any weed other than crabgrass.

Scott has disseminated issues of its publication Lawn Care, recommending the use of Clout for the selective control of crabgrass, to homeowners and other prospective users of Clout in the following states: Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Delaware, Wisconsin, Illinois, Indiana, Michigan, Ohio, Iowa, Minnesota, Maryland, Virginia, Kentucky, West Virginia, Missouri, Nebraska, Kansas, Colorado, Montana, Wyoming, North Dakota, South Dakota, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Oregon, Washington, Idaho, Utah, Nevada, California, and Arizona.

In those geographical areas of the United States where dallis grass is a problem, crabgrass is also a problem. In the cool climate grass areas of the United States dallis grass is not much of a problem.

Scott has used the terms "Clout kills crabgrass", "Clout controls crabgrass" and "Clout destroys crabgrass", to describe the selective herbicidal activity of Clout against crabgrass.

The bags in which Clout was sold by Scott in 1956 bear the printed legend, "Clout Crabgrass Control".

The bags in which Clout was sold by Scott in 1957 bear the printed legends, "Clout Destroys Crabgrass" and "Clout Crabgrass Blaster Buick Sure Destruction of Spreading Crabgrass". The Clout product that was sold by Scott in 1957 had the same composition as the Clout product sold by Scott in 1956.

When the Clout product sold by Scott in 1957 was applied to an area containing crabgrass in accordance with Scott's directions accompanying that product substantially the same amount of DSMA was applied to that area as when the Clout product sold by Scott in 1956 was applied to that area in accordance with Scott's directions for the application of Clout.

The bags in which Clout was sold by Scott in the years 1958 through 1969 bear the various legends: "Clout Destroys Crabgrass"; Clout Controls Crabgrass"; "Clout Crabgrass Blaster Quick, Sure Destruction of Spreading Crabgrass".

When the Clout product sold by Scott in the years 1958-1969 was applied to an area containing crabgrass in accordance with Scott's directions accompanying that product, substantially the same amount of DSMA was applied to that area as when the Clout product sold by Scott in 1956 was applied to that area in accordance with Scott's 1956 directions for the application of Clout.

Renner testified that in 1960 it was his understanding that the function of the Ultrawet ingredient in Clout was:

> To increase the effectiveness of the active ingredient by enabling better absorption by the plant, presumably by acting on the lipids of the cell walls and on the cutinaceous coatings of the foliage surface. The surface-active agent also increases effectiveness by reducing surface tension of moisture which comes into contact with the herbicide. This provides for a wider and more effective distribution of the active ingredient over the plant.

As used by Scott in its herbicide test reports, the term "percent crabgrass control" is equivalent to the term "percent crabgrass killed".

The quantities, volumes, densities and weight percentages of the Clout product, and of its component ingredients, manufactured by or for Scott are as stated in PX-178.

When the Clout product manufactured by or for Scott is applied to an area containing crabgrass in accordance with Scott's directions accompanying that product, the application rate of that product, and of its component ingredients, are as stated in PX-179.

All of the Clout product that has been sold by Scott has contained DSMA.

On or about December 5, 1957, Renner requested that Smith test Ultrawet K Dense for phytotoxicity to crabgrass and possible synergistic action with DSMA. In response to that request, Smith conducted those tests in the spring of 1958 and reported the results of this testing in two test reports, PX-80 and PX-81. Smith conducted another such test in July, 1963 and reported the results of his testing in a test report, PX-82.

In those tests by Smith it was found that the percent control of crabgrass resulting from the application of Ultrawet K Dense alone at a rate of about four pounds per acre to an area containing crabgrass was as follows:

Test Report	Percent Control		
	1 Application	2 Applications	3 Applications
PX-80	——	——	17
PX-81	Zero	Zero	——
PX-82	——	1	Zero

In the process of formulating Clout from its individual component ingredients, DSMA does not undergo any chemical change in form.

In the formulated Clout product, each of the component ingredients of Clout, *viz.* DSMA, vermiculite, wetting agent (Ultrawet or Calsoft), hexylene glycol and dye, retains its original chemical identity.

In Hackh's Chemical Dictionary, 2d ed. 1944, p. 542, a "mixture" is defined as "two or more substances which are mixed; but not chemically combined."

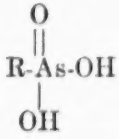
After having conducted a comparative testing of Clout, and of the component ingredients of Clout, for selective herbicidal effect on crabgrass, plaintiffs' expert, Duich,

concluded that the herbicidally active ingredient in Clout is disodium methyl arsonate.

The specification of United States Patent Application Serial No. 60,287 filed by Scott in the United States Patent Office on October 4, 1960, describes the product being marketed in 1960 by Scott under the trademark Clout. That application also describes other products.

That patent application fully and accurately describes how to prepare the Clout product that was being marketed in 1960 by Scott.

The patent application No. 60,287 describes the organo arsenicals that may be used in composition such as Clout, as "herbicidal compositions comprising a mixture of at least one arsenic compound selected from the group consisting of arsonic acids having the formula:



where R is an aliphatic group selected from the group consisting of methyl, ethyl, propyl and butyl, and salts thereof."

That application states that, of the compounds included within that group of compounds, "disodium methyl arsonate has given particularly good results."

That application states that, "The arsonate may be either in the anhydrous or in the hydrate form without detracting from herbicidal properties of the compounds."

That application states that, "The arsonate may be either in the anhydrous or in the hydrate form without detracting from herbicidal properties of the compounds."
Arthur Schwerdle."

On November 19, 1953, more than two years after Schwerdle filed his application, Schwerdle stated:

> As a result of these tests I have found that a single application of any of the stated compounds . . .

provides effective selective crabgrass control.

To the extent that Schwerdle Patent 2,678,265 discloses to the public the "concentration and amount" in which the chemical is to be applied, such disclosure is specifically related to the application of the chemical as a spray and in a single application.

Defendant's Vice-President Renner testified that Clout was developed by defendant through a research and development program requiring five to six man years of effort.

Defendant's product Clout is recommended for use in two or more applications. It is ineffective, by Scott's standards, in a single application as taught by the '265 patent.

Defendant's turf expert, Dr. Colby, testified that defendant's Exhibit 542 demonstrates that if DSMA alone were applied to a crabgrass infested lawn in one application at a rate of 3.3 pounds per acre, only fifty percent control of crabgrass is achieved.

Defendant's product Clout now contains and has always contained the following essential ingredients: expanded vermiculite; a sticking agent (hexylene glycol); a surface active or wetting agent (Calsoft F-90 or Ultrawet K Dense); and disodium methyl arsonate.

The '265 patent does not suggest the use of vermiculite as a carrier, the use of a sticking agent, or the use of a surface active agent.

The concentration and amount of DSMA in defendant's product Clout was the result of experimentation using various concentrations and was determined by defendant.

The rate at which DSMA is applied to turf in defendant's product Clout is approximately 3.4 pounds per acre,

which is far below the minimum rate taught in the Schwerdle Patent 2,678,265 (9.6 pounds per acre) and far below the average rate taught in the '265 patent (14.4 pounds per acre).

The use of DSMA in defendant's product Clout in an amount far below the amount taught by the '265 patent is made possible by the synergistic action of the components in Clout.

Dr. Colby also testified that it was possible that it was not the DSMA in defendant's product Clout which provided the effective crabgrass control, but rather the synergistic combination of Calsoft and DSMA working together.

C. Conclusions of Law on the Issue of Infringement.[18]

Title 35, United States Code, Section 271(b) provides:

> Whoever actively induces infringement of a patent shall be liable as an infringer.

Infringement of a patent is a matter of substantial identity to the disclosed and claimed invention; and the tort is not made less culpable by additions or improvements, even patented improvements. *Mills Novelty Co.* v. *Monarch Tool & Mfg. Co.*, 76 F.2d 653 (6th Cir. 1935); *Holland Co.* v. *American Steel Foundries, Inc.*, 190 F.2d 37 (7th Cir. 1951).

Defendant's objections that the '265 patent claimed a spray method of application and Clout is a granular method; that the patent teaches a one application method and Clout is a multiple application; and that Clout makes a more efficient use of DSMA are without merit. Doubtless Scott has made many improvements on the '265 patent for the retail commercial use of DSMA as a crabgrass controllant. Nonetheless, Scott markets Clout, which has as its only active ingredient DSMA for use as a crabgrass herbicide.

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[18] This issue will be discussed even though the Court has held the '265 patent invalid, and conclusions of law will be made as though the '265 patent had been held valid.

Similarly, Scott's use of vermiculite, a sticking agent, and a surface active or wetting agent, are improvements on the method taught by the '265 patent, but they are dependent on the invention disclosed by the '265 patent.

Renner's testimony of the time and research by Scott to develop Clout is not compelling. Even improvements take time and diligent effort; yet they are not adequate substitute for invention.

Dr. Colby's testimony concerning the "synergistic" activity of the ingredients of Clout is no more than a statement that Scott developed a successful commercial adaptation of the '265 patent. Synergistic or not, Clout still relies upon DSMA, and DSMA alone, as its active herbicidal ingredient. If DSMA is removed, synergism will not kill crabgrass.

On the issue of inducement of infringement, there is more than ample evidence that Scott marketed Clout for ultimate use as a crabgrass controllant. The bags encourage infringement. Scott's publications also induce infringement.

There is no evidence Scott itself has infringed the patent by its own use.

The Court concludes that Scott actively induced infringement of United States Patent No. 2,678,265 in violation of Title 35, United States Code, Section 271(b).

WHEREUPON, IN CONCLUSION, and in accordance with the findings of facts and the conclusions of law in respect to the issue of validity of the patent made hereinbefore that Claim 2 of United States Patent No. 2,678,265 is invalid in that such patent covers the use of inoperable compounds, the Court holds that the patent in suit is invalid.

Counsel are directed to submit to the Court within twenty (20) days of the filing of this Opinion, a judgment in accordance herewith.

/s/ JOSEPH P. KINNEARY

United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
EASTERN DIVISION

Civil Action 6319

Judgment

This cause, having come on to be heard on the pleadings and proofs of the parties, appearing by their respective counsel, and briefs having been filed by counsel and duly considered by the Court, and the Court having rendered an opinion and made its findings of facts and conclusions of law all filed herein and due deliberation having been had, it is now ORDERED, ADJUDGED AND DECREED THAT:

1. Claim 2 of United States Patent No. 2,678,265, issued May 11, 1954, and assigned to plaintiffs, is invalid for the reason set forth in the opinion.

2. Defendant has not directly infringed United States Patent No. 2,678,265, by its own use.

3. Defendant has actively induced infringement of Claim 2 of United States Patent No. 2,678,265, if valid.

4. Plaintiffs have not misused United States Patent No. 2,678,265.

5. Arthur Schwerdle, Miriam Schwerdle, Vineland Chemical Company, The W. A. Cleary Corporation and American Research Associates are not indispensable parties to the action.

6. The complaint be, and the same hereby is, DISMISSED.

7. Each party shall pay and be responsible for the costs and disbursements incurred by it. No award of counsel fees is made to either party.

/s/ JOSEPH P. KINNEARY

United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
EASTERN DIVISION

Civil Action 6319

Notice of Appeal

Notice is hereby given that Clyde M. Noll and S. Joseph Fortunato, as Trustees, plaintiffs above named, hereby appeal to the United States Court of Appeals for the Sixth Circuit from so much of the judgment entered in this action on the 20th day of April, 1971 as is set forth in Paragraphs Nos. 1, 2, 6 and 7 thereof, *viz.:*

"1. Claim 2 of United States Patent No. 2,678,265, issued May 11, 1954, and assigned to plaintiffs, is invalid for the reason set forth in the opinion."

"2. Defendant has not directly infringed United States Patent No. 2,678,265, by its own use."

"6. The complaint be, and the same hereby is, DISMISSED."

"7. Each party shall pay and be responsible for the costs and disbursements incurred by it. No award of counsel fees is made to either party."

May 11th, 1971.

VORYS, SATER, SEYMOUR & PEASE,

By /s/ JAMES O. SEYMOUR
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IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
EASTERN DIVISION

Civil Action 6319

Notice of Appeal

Notice is hereby given that defendant, O. M. Scott & Sons Company, hereby appeals to the United States Court of Appeals for the Sixth Circuit from so much of the Judgment entered in this action on April 20, 1971, as is set forth in numbered paragraphs 3, 4 and 7 of said Judgment.

By Richard J. Benthrup
Gingher & Christensen
Attorneys for Defendant

Of Counsel:

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Order to File Supplemental Briefs.

Nos. 71-1518-19

Before PHILLIPS, Chief Judge, CELEBREZZE, Circuit Judge, and MCALLISTER, Senior Circuit Judge.

This case was submitted on oral arguments and briefs on the regular calendar of this court April 4, 1972, and is now under advisement.

It is ORDERED that counsel file supplemental briefs on the following questions:

1. Does the amendment to the then existing law made by the 1952 Patent Act, by the addition of the material codified in the third paragraph of 35 U.S.C. § 112, modify the rule announced by this court in *Kalle & Co.* v. *Multazo*, 109 F.2d 321, 325 (6th Cir. 1940) to the extent of making the rule inapplicable to combination claims including an element "expressed as a means or step for performing a specified function . . ." where any inoperative subject matter within the literal non-functional scope of that element is neither described in the specification nor the equivalent thereof?

2. Does Claim 2 of the Schwerdle patent express the herbicidal element of the combination "as a means or step for performing a specified function . . ." within the meaning of the third paragraph of 35 U.S.C. § 112?

Simultaneous briefs on these issues will be filed by both parties not later than twenty days from the date of the entering of this order. Reply briefs will be filed not more than ten days from the date of filing supplemental briefs. Typewritten briefs and three legible copies produced by Xerox or similar process may be filed in lieu of printed briefs.

Entered by order of the court.

/s/ JAMES A. HIGGINS
Clerk

CONCLUSION

In its eighty page opinion, the Court below dealt with a series of complex and difficult issues in addition to the issues of infringement and misuse. The Court decided many of these issues adversely to Scott.

Despite our dissatisfaction with these other rulings, we have not asked this Court to review them. We concede that they are based on interpretations of the law and facts which, though different from ours, cannot be said to involve clear error.

We submit, however, that on the issues of infringement and misuse, the circumstances are different, that the facts found by the District Court offer no latitude but compel the conclusions, as a matter of law, that Scott did not infringe the '265 patent and that the '265 patent has been misused.

We respectfully ask this Court to so hold.

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